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CLIMATOLOGICAL DATA FOR JULY, 1911.

DISTRICT NO. 1, NORTH ATLANTIC STATES.

WILFORD M. WILSON, District Editor.

GENERAL SUMMARY.

The most prominent feature of the weather of July, 1911, was the period of intense heat that continued with little or no interruption from the beginning of the month until about the 13th. The temperature rose to a higher degree than had been known for many years, and over nearly half of the district all records for the last 30 years were surpassed. During the latter part of the month the weather was much cooler; in fact, the temperature after the 14th averaged considerably below normal. The rainfall of the month occurred chiefly between the 14th and 25th; in the New England States and part of New York the showery period continued until the 30th, while in Virginia and Maryland it began about the 7th. In all parts of the district at least one-half of the month was quite dry, and, with a few local exceptions, vegetation at one time or another suffered much from the lack of sufficient moisture. The distribution of rainfall was decidedly irregular, the records showing many instances of differences in the month's precipitation amounting to 3 inches or more at stations very near each other. This is due to the fact that much of the precipitation came in the form of heavy local showers. Some of these were attended by heavy thunder and lightning, and excessive rates of rainfall, but the damage from these causes was much less than in the preceding month. The number of rainy days was unusually small, while the percentage of clear weather was nearly equal to the highest on record for any month. The following table presents the leading meteorological features for the several sections in the district:

States, or parts of States, within district No. 1.	Temperature.				Precipitation.				Average number of—	
	Average.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest total.	Least total.	Rainy days.	Clear days.
New England States.....	72.6	+3.2	106	40	3.95	+0.27	10.77	0.31	8	17
New York.....	72.0	+2.2	106	38	2.69	-1.94	5.27	0.90	8	17
Pennsylvania.....	74.2	+2.3	105	40	3.27	-0.99	7.41	0.91	9	17
New Jersey.....	76.0	+2.2	104	42	3.64	-1.27	6.46	2.06	8	12
Maryland, Delaware, and District of Columbia.....	77.7	+1.6	106	46	2.64	-1.87	6.07	0.04	6	19
West Virginia.....	73.1	+0.8	102	40	2.50	-0.98	3.72	0.40	6	16
Virginia.....	77.1	+1.4	104	44	3.19	-1.05	5.31	1.25	7	15

TEMPERATURE.

The mean temperature for the month was above normal at all stations, except 4, and was higher than for any July since 1901, or earlier, in at least half of the district. For the New England States the average temperature, 72.6°, was the highest for any July since the sectional averages have been computed, beginning

in 1888. South of Pennsylvania the average temperature was not unusually high, though it was generally above normal, and the hot wave of the first two weeks was scarcely less marked than in the northern part of the district. Intensely hot weather prevailed in all sections at the beginning of the month and continued for nearly two weeks, being relieved by one or two days of slightly cooler weather with showers in the southern part of the district on the 7th or 8th. At about half the stations in the district temperatures of 100° or above were recorded on one or more days before the 12th. The highest temperature recorded in the district was 106°, which was experienced at points in New Hampshire, Massachusetts, New York, and Maryland. On the 3d, 4th, 6th, 10th, and 11th temperatures of 100° or more occurred in nearly all sections. At 8 of the stations in New York and 13 in New Jersey, the temperature reached 100° or above on three or more days; at Addison, N. Y., and Somerville, N. J., a temperature of 100° or above was observed on six different days. The hot period was remarkable for its length as well as its intensity, and so disastrous were its effects upon human life that probably more than 1,000 persons within the district died as a direct result of the extreme heat, and the number of sufferers from disease whose end was hastened by the hot weather was fully as great. The heat of this period together with the want of rainfall proved very injurious to vegetation, so that the growth of most plants was checked and over extensive areas the grass withered and died.

The weather of the latter half of the month was comparatively pleasant, the nights were cool, and the average temperature on most days was below normal. The coolest weather occurred chiefly in the third decade, the 19th, 23d, 26th, and 27th being the dates on which the lowest temperatures generally occurred. Only 2 stations in the entire district, Indian Lake, N. Y., and Morehouseville, N. Y., recorded temperatures below 40°. At each of these stations the minimum was 38°. Generally speaking, the lowest temperature for the month ranged from 40° to 60° in various parts of the district.

PRECIPITATION.

There was a marked deficiency in rainfall over the greater part of the district, particularly before the 14th, and, owing to the dry period of the latter part of June, drought conditions of unusual severity developed before the middle of July, even in some of the localities where the monthly rainfall exceeded the normal. The month's rainfall came largely in the form of heavy local showers, causing a decided irregularity in its distribution, and, though there were 46 stations in the district reporting an excess of rainfall, it appears that the deficiency reported by all other stations represents more accurately the general condition of insufficient rainfall. Further indications of general drought are furnished by numerous press reports coming from all sections. In Massachu-

setts, where one station, Rockport, reported a total rainfall of 10.77 inches, and in other parts of New England where the average precipitation exceeded the normal, the effects of the drought were as severe as anywhere in the district, for the showers so often fell at excessive rates or came so late in the month that comparatively little good resulted. For example, at Rockport, Mass., there was a rainfall of 2.50 inches on the 6th, which was the only precipitation from the beginning of the month until the 17th, when 0.05 inch was recorded. Heavy showers occurred again at this station on the 21st, 24th, 25th, 28th, and 29th, the amount recorded on the 28th being 4.85 inches—the greatest amount for a 24-hour period in the district during the entire month.

Rain fell at excessive rates at 15 other stations in New England, chiefly on the 28th, when a general rainfall of $1\frac{1}{2}$ to 4 inches occurred over that section, completely relieving the drought, but not sufficing to bring the springs, streams, and ponds to a normal stage.

RIVER CONDITIONS.

The rivers of the district remained low throughout the month, the changes in the water level being unusually small. The highest stages, as a rule, occurred either on the 1st or about the 18th and the lowest occurred between the 12th and 15th or near the end of the month. At Harrisburg and Wilkes-Barre, Pa., the average stage of the Susquehanna River was the lowest for any July in the past 10 years. Relatively low stages of water prevailed in the greater portions of the Hudson River and its tributaries, with a general tendency to slightly lower conditions toward the end of the month. The lowest reading ever recorded at Trenton Falls, N. Y., 1.4 feet, occurred on the 23d.

SUNSHINE.

The percentage of sunshine was unusually high, the average for 14 stations being 66, though at Eastport, Me., and Hartford, Conn., the percentage was only 54. In the southern part of the district the amount of clear weather was remarkable; the percentage of sunshine at Baltimore, Md., being 79. The total sunshine for the month in hours averaged 303 and ranged from 249 at Hartford, Conn., to 358 at Baltimore, Md. The number

of days with 80 per cent or more of the possible sunshine averaged 13, and the number with 20 per cent or less, 3.

For the district the average number of days with 0.01 inch or more of rain was 7, the average number of clear days was 16, partly cloudy days 11, and cloudy days 4.

TORNADO AT CONCORD, N. H.

The following abridged account is taken from a report furnished by E. C. Vose, Official in Charge, local office Weather Bureau, Concord, N. H.

On the evening of July 24 between 7.15 and 7.22 p. m. a tornado passed in a northeasterly direction near the southwestern extremity of the city. The destructive effects were limited to a track about 3 miles in length and nowhere more than about 1,000 feet in width. No damage was reported within the city, the tornado apparently having disappeared after crossing South Street and uprooting a number of trees just beyond.

No persons or animals were killed or injured, but numerous buildings were wrecked and a great many trees were uprooted or broken off, and other destruction was wrought such as generally results from this class of storms. In some cases timbers were carried by the wind for a distance of 300 or 400 feet, and a pane of glass was blown nearly three-fourths of a mile. The position of the fallen trees and the scattered debris was such as to indicate clearly the whirling motion of the winds, which has been confirmed also by the statements of persons who witnessed the storm as it approached. One observer described it as having the appearance of a "copper-colored balloon with a tail reaching to the ground."

LOCAL STORM AT PLEASANTVILLE, N. J.

An exceptionally severe local storm, which is not definitely known to have been of tornadic character, swept over a portion of Pleasantville, N. J., on the afternoon of the 17th. The high wind demolished chimneys, overturned many small out buildings, unroofed several dwellings, and moved one from its foundation. The storm had no well-defined path, but the destructive effects were confined to an area measuring about 3 miles in length by about one-half mile in width.

TABLE 1.—Climatological data for July, 1911. District No. 1, North Atlantic States.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
Maine.																					
Bar Harbor.....	Hancock.....	20	25	68.9	+ 3.3	90	6†	50	8†	35	4.41	+ 1.39	1.37	0	11	23	3	5	sw.	William Miller.	
Cornish.....	York.....	778	56	73.2	+ 4.2	103	10	48	23	41	3.84	+ 0.43	2.22	0	9	14	8	9	w.	T. H. West.	
Eastport.....	Washington.....	53	39	64.0	+ 4.2	85	12	52	17	30	3.50	+ 0.08	1.73	0	10	6	17	8	s.	U. S. Weather Bureau.	
Fairfield.....	Somerset.....	90	26	72.5†	+ 4.6	98	4†	50	24†	37†	2.75	+ 0.70	1.50	0	7	16†	2†	7†	.....	E. F. Parker.
Farmington.....	Franklin.....	450	14	71.6	+ 4.2	104	10	43	23	42	2.68	+ 0.91	1.87	0	9	17	8	6	sw.	State Normal School.	
Gardiner.....	Kennebec.....	163	19	72.1	+ 1.3	102	4	49	27	36	5.43	+ 2.60	1.33	0	13	23	2	6	w.	Samuel D. Soule.	
Greenville.....	Piscataquis.....	1,000	7	68.8	.....	93	3†	46	8	38	4.04	.....	1.41	0	12	.....	.....	.....	.....	U. S. Weather Bureau.
Houlton.....	Aroostook.....	362	9	74.6	.....	102	7	49	9	39	2.11	.....	0.60	0	5	26	2	3	w.	Bangor & Aroostook R. R.
Lewiston.....	Androscoggin.....	185	37	73.9	+ 4.4	102	4	53	27	33	5.64	+ 2.03	2.03	0	12	17	7	7	s.	Union Water Power Co.	
Madison.....	Somerset.....	257	8	71.0	.....	102	11	44	26	49	4.91	.....	2.98	0	9	22	2	7	w.	William Jardine.
Millinocket.....	Penobscot.....	386	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. S. Ferguson.
North Bridgton.....	Cumberland.....	450	18	74.1	+ 4.6	105	4†	49	27	39	3.89	+ 1.27	1.72	0	12	11	11	9	s.	G. E. Chadbourne.	
Orono.....	Penobscot.....	129	42	71.4	+ 4.1	96	6	48	8	39	4.45	+ 1.13	1.08	0	10	3	22	6	w.	U. S. Weather Bureau.	
Patten.....	do.....	550	9	70.6†	.....	100	6†	42	8†	45†	3.73	.....	1.15	0	6	17	6†	3†	sw.	Bangor & Aroostook R. R.
Portland.....	Cumberland.....	99	40	71.8	+ 3.8	103	4	54	26	29	4.71	+ 1.46	2.79	0	10	13	6	12	w.	U. S. Weather Bureau.	
Presque Isle.....	Aroostook.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	S. L. Merriman.
Rumford Falls.....	Oxford.....	505	18	71.6	+ 4.3	101	4	48	23	36	2.46	+ 1.75	1.07	0	9	23	4	4	nw.	Charles A. Mixer.	
Winslow.....	Kennebec.....	90	16	73.3	.....	101	4	49	27	35	4.43	.....	1.77	0	11	.....	.....	.....	s.	Hollingsworth & Whitney Co.
New Hampshire.																					
Alstead Center.....	Cheshire.....	1,120	7	71.5	97	5	50	26†	33	5.82	1.45	12	21	3	5	sw.	Frank Dewing.
Benton.....	Grafton.....	2	69.8	.....	.....	97	3†	45	26	36	4.56	.....	2.04	0	7	24	3	4	w.	State Sanatorium.
Bethlehem.....	do.....	1,470	19	69.5	+ 2.4	96	3†	46	27	38	4.74	+ 0.64	2.16	0	14	23	6	2	w.	Benjamin Tucker.	
Concord.....	Merrimack.....	350	51	73.2	+ 4.1	102	4	49	27	35	3.45	+ 0.34	2.29	0	7	8	15	8	.....	U. S. Weather Bureau.
Durham.....	Stafford.....	88	16	73.6	+ 3.7	103	3†	49	20†	36	4.96	+ 1.40	2.75	0	7	24	3	4	s.w.	Agr. Exp. Station.	
Franklin.....	Merrimack.....	440	12	73.5	.....	103	3†	47	27	39	4.29	.....	2.16	0	10	19	10	2	w.	Dr. C. P. Webster.
Grafton.....	Grafton.....	863	25	68.6	+ 0.8	99	3†	40	26	40	4.69	+ 0.48	2.00	0	8	18	9	4	w.	Perley R. Kimball.	
Hanover.....	do.....	603	77	71.0	+ 1.8	101	3	47	27	41	8.26	+ 4.60	3.63	0	10	26	4	1	s.	Dartmouth College.	
Keene.....	Cheshire.....	506	26	72.7	+ 4.4	104	3	43	25	45	3.69	+ 0.59	1.09	0	10	20	9	2	sw.	Samuel Wadsworth.	
Nashua.....	Hillsboro.....	125	26	76.5	+ 5.8	106	4	51	27	36	5.26	+ 1.65	2.14	0	5	.....	.....	.....	.....	Jackson Company.
Newton.....	Rockingham.....	23	72.6	+ 3.4	102	4	47	8†	36	4.27	+ 0.65	3.42	.....	0	5	12	17	2	se.	W. C. Gale.
Plymouth.....	Grafton.....	500	23	70.6	+ 3.0	101	3†	43	26	42	4.36	+ 0.54	1.40	0	13	19	4	8	w.	Hattie G. Trow.	
Vermont.																					
Bloomfield.....	Essex.....	4	68.2	.....	.....	98	3	44	23	40	4.53	.....	1.10	0	17	20	8	5	s.	Lyman Falls L. & P. Co.
Cavendish.....	Windsor.....	910	8	68.0	.....	102	5	44	27	46	4.62	.....	2.21	0	11	20	8	3	w.	M. A. Kingsbury.
Chelsea.....	Orange.....	840	16	68.2	+ 1.0	97	3†	42	1†	47	4.31	+ 0.17	1.48	0	8	23	4	4	s.	U. S. Dewey.	
Jacksonville.....	Windham.....	1,000	26	70.0	+ 4.4	99	5	40	16	44	1.21	+ 3.52	0.50	0	4	26	3	2	nw.	Martha French.	
Manchester.....	Bennington.....	980	12	70.7	.....	95	4†	45	27	34	0.31	.....	0.31	0	2	18	10	3	sw.	N. M. Canfield.
St. Johnsbury.....	Caledonia.....	711	18	71.5	+ 3.4	101	3	47	8	41	4.73	+ 0.42	1.31	0	11	12	11	8	nw.	Fairbanks Museum.	
Woodstock.....	Windsor.....	700	19	69.4	+ 1.1	100	4	45	27	47	6.72	+ 3.39	1.85	0	9	11	6	14	.....	John S. Eaton.
Massachusetts.																					
Amherst.....	Hampshire.....	222	22	74.6	+ 4.1	104	4	49	26†	38	4.21	+ 0.36	2.02	0	9	16	12	3	sw.	Agr. Exp. Station.	
Blue Hill.....	Norfolk.....	640	27	74.2	+ 5.0	99	3	53	26	30	4.55	+ 0.76	3.32	0	8	14	7	10	sw.	A. Lawrence Rotch.	
Boston.....	Suffolk.....	124	41	77.1	+ 5.8	104	4	57	28	30	4.65	+ 1.29	3.49	0	4	11	10	10	w.	U. S. Weather Bureau.	
Chestnut Hill.....	do.....	124	31	76.1	+ 5.3	103	3	53	26	38	4.69	+ 1.07	3.44	0	4	26	0	5	.....	Met. Water Board.
Clinton.....	Worcester.....	370	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Do.
Concord.....	Middlesex.....	139	21	73.5	+ 3.6	103	4	48	26	36	3.33	+ 0.08	2.42	0	10	12†	13†	5†	sw.	Fred A. Tower.	
Fall River.....	Bristol.....	200	45	74.6	+ 3.9	94	10	59	28	22	4.71	+ 1.11	2.96	0	8	9	20	2	sw.	C. V. S. Remington.	
Fitchburg.....	Worcester.....	550	28	75.8	+ 5.3	103	4†	52	26	31	2.52	+ 1.70	1.15	0	8	22	4	5	w.	Dr. A. P. Mason.	
Framingham.....	Middlesex.....	160	31	76.0	+ 4.7	104	4	49	26	37	3.21	+ 0.44	2.00	0	5	.....	.....	.....	.....	Met. Water Board.
Hyanis.....	Barnstable.....	31	20	72.4	+ 0.4	92	10	57	7	22	3.72	+ 0.92	3.36	0	6	21	8	2	sw.	C. F. Sleeper.	
Lawrence.....	Essex.....	51	27	76.4	+ 3.8	106	4	51	26	35	3.19	+ 0.13	2.03	0	6	9	18	4	sw.	Essex Company.	
Lowell.....	Middlesex.....	100	26	77.6	+ 6.1	103	5	54	26	31	3.35	+ 0.34	2.36	0	3	.....	.....	.....	.....	Props. Locks & Canals.
Middleboro.....	Plymouth.....	53	25	72.4	+ 3.2	99	10	45	8	37	4.62	+ 1.54	2.84	0	5	4	17	10	sw.	A. R. Gurney.	
Monson.....	Hampden.....	420	27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. G. E. Fuller.
Nantucket.....	Nantucket.....	15	25	71.0	+ 3.5	88	10	59	1	21	3.20	+ 0.52	2.12	0	6	14	12	5	sw.	U. S. Weather Bureau.	
New Bedford.....	Bristol.....	88	99	74.0	+ 5.0	96	10†	57	28	24	5.75	+ 2.41	4.08	0	7	23	3	5	sw.	City Engineer.	
Norfolk.....	Norfolk.....	244	8	73.8	.....	101	5†	43	23†	40	4.30	.....	3.06	0	6	19	9	3	w.	Ruby H. Martyn.
Northampton.....	Hampshire.....	205	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	D. E. Hoxie.
Plymouth.....	Plymouth.....	26	71.6	.....	.....	94	6†	53	8†	28	5.54	.....	3.97	0	3	22	5	4	w.	Laura B. Knapp.
Provincetown.....	Barnstable.....	40	24	72.2	+ 2.5	93	10†	54	26	27	3.33	+ 0.40	2.26	0	4	27	0	4	sw.	Gideon Bowley.	
Rockport.....	Essex.....	25	9	70.2	.....	95	6	54	26	29	10.77	.....	4.85	0	7	14	12	5	sw.	C. F. P. Bearse.
Rutland.....	Worcester.....	1,160	9	73.3	.....	100	5	52	25†	29	2.32	.....	1.02	0	5	17	8	6	sw.	State Sanatorium.
South Egremont.....	Berkshire.....	764	9	68.7	.....	96	4	43	26	33	3.38	.....	0.98	0	12	.....	.....	.....	.....	Roscoe C. Taft.
Turners Falls.....	Franklin.....	200	20	73.7	+ 3.8	100	4	51	26	30	2.72	+ 1.61	1.03	0	5	.....	.....	.....	.....	Turners Falls Co.
Westboro.....	Worcester.....	298	37	77.2	+ 5.1	105	4	51	26	37	2.92	+ 0.67	1.47	0	7	.....	.....	.....	.....	G. S. Newcomb.
Williamstown.....	Berkshire.....	711	30	71.8	.....	97	4†	49	26	31	2.30	.....	0.69	0	10	14	10	7	w.	Williams College.
Worcester.....	Worcester.....	518	19	70.9	+ 0.5	102	4	56	28	27	2.92	+ 1.05	0.81	0	8	17	6	8	sw.	G. W. Swan.	
Rhode Island.																					
Block Island.....	Newport.....	26	31	70.9	+ 2.8	92	11	60	26	22	2.95	+ 0.36	1.63	0	6	15	8	8	sw.	U. S. Weather Bureau.	
Bristol.....	Bristol.....	53	25	72.4	+ 2.6	88	11	59	8†	18	4.36	+ 1.23	2.87	0	5	23	4	3	sw.	N. G. Herreshoff.	
Kingston.....	Washington.....	250	22	71.4	+ 2.2	98	10	51	26	36	3.71	+ 0.05	1.48	0	6	14	12	5	sw.	Nathaniel Helme.	
Narragansett																					

TABLE 1.—Climatological data for July, 1911. District No. 1—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
New York.																				
Addison.	Steuben.	1,000	21	73.4	+ 3.1	106	4	46	18	43	2.57	- 1.02	0.79	0	10	22	8	1	sw.	Dr. H. E. Ainsworth.
Albany.	Albany.	97	90	75.3	+ 3.3	104	4	55	26	29	3.16	- 0.74	1.05	0	11	16	13	2	s.	U. S. Weather Bureau.
Alfred.	Allegany.	1,976	16	68.8	+ 1.2	98	4	41	18	37	3.25	- 0.07	1.10	0	9				w.	Prof. F. S. Place.
Amsterdam.	Montgomery.	277	7	72.8		100	5	46	26	39	1.15		0.45	0	7	22	6	3	w.	Emery Elwood.
Athens.	Greene.	90	9	74.2		102	3	50	26	32	1.56		2.00	0	11	11	17	3	sw.	E. C. Brooks.
Ballston Lake.	Saratoga.	400	7	71.0		98	3	43	26	35	1.33		0.58	0	7	20	8	3	w.	George J. Schaubert.
Bedford.	Westchester.	450	20	76.5	+ 3.9	102	3	50	26	35	3.18	- 1.38	1.20	0	9	16	11	4	sw.	Dr. L. Rosenberg.
Binghamton.	Broome.	875	20	72.3	+ 2.4	98	4	49	19	33	2.66	- 0.88	1.00	0	10	5	15	11	w.	U. S. Weather Bureau.
Bouckville.	Madison.	1,350	14	69.8	+ 1.8	95	3	47	26	31	5.05	+ 0.40	1.96	0	7	10	12	9	sw.	L. W. Griswold.
Boyd's Corners.	Putnam.	560	29					2.00			2.10			0					sw.	Thomas Manning.
Carmel.	do.	500	19	72.7	+ 0.5	100	4	49	26	32	2.79	- 2.39	1.22	0	7	21	2	8	nw.	Do.
Chatham.	Columbia.	470	10	74.2	+ 3.3	103	4	48	26	33	2.28	- 1.72	0.41	0	14	17	11	3	s.	Morton R. Tank.
Cooperstown.	Otsego.	1,250	57	69.7	+ 1.6	94	4	46	27	32	3.03	- 1.51	0.85	0	11	20	9	2	w.	Miss Elizabeth Keese.
Corinth.	Saratoga.	542	9					3.05			3.05		1.45	0	7				sw.	A. M. Hollister.
Cortland.	Cortland.	1,129	49			101	4	48	26	33	3.00	- 1.88	1.76	0	11	20	8	3	sw.	F. G. Baker.
Cutchogue.	Suffolk.	32	34	73.3	+ 1.3	96	11	54	26	25	2.63	- 0.72	0.90	0	6	17	12	2	sw.	Wm. A. Fleet.
De Ruyter.	Madison.	1,300	8	69.0		98	5	43	14	35	3.41		1.32	0	5	24	4	3	s.	B. D. Grandall.
Glens Falls.	Warren.	340	20	73.4	+ 2.5	101	3	47	27	35	2.56	- 1.46	0.77	0	10	16	10	5	sw.	Prof. C. L. Williams.
Gloversville.	Fulton.	850	19	70.8	+ 1.9	100	5	42	26	38	0.96	- 3.23	0.40	0	5	19	10	2	w.	W. L. McLean.
Greenfield Center.	Saratoga.	314	13	72.2	+ 2.2	100	3	46	26	38	1.63	- 2.40	0.70	0	7	21	8	2	nw.	S. E. Tarrow.
Greenwich.	Washington.	425	14			104	5	50	14	42	1.80	- 1.80	0.71	0	7	19	12	0	s.	Homer J. Whitcomb.
Griffin Corners.	Delaware.	2,260	11			100	4				2.92	- 0.96	1.67	0	10	15	11	5	w.	Harold O. Judd.
Haskinsville.	Steuben.	16						2.19			2.52	- 0.93	0.93	0	8				sw.	W. G. Collins.
Homer.	Cortland.	20		70.2	+ 4.0	98	5	46	26	36	4.49		1.40	0	8	21	10	0	nw.	Charles C. Mortimer.
Hoosick Falls.	Rensselaer.	410	9					3.07			3.07		1.20	0	10				sw.	Sanford L. Cluett.
Indian Lake.	Hamilton.	1,705	12	67.6	+ 2.3	103	3	38	27	51	1.15	- 2.82	0.50	0	4	15	11	5	w.	Lester Severie.
Jeffersonville.	Sullivan.	1,240	8	70.9		99	4	42	26	38	2.28		0.50	0	9	19	12	0	w.	Charles Wilfert, Jr.
Liberty.	do.	2,300	29	70.6	+ 3.4	95	4	42	26	33	2.66	- 2.11	0.70	0	9	21	2	8	nw.	Dr. H. M. King.
Little Falls.	Herkimer.	924	13	72.2	+ 2.8	97	5	48	26	35	2.30	- 2.46	0.92	0	5	22	8	1	w.	O. J. Dempster.
Mohawk Lake.	Ulster.	1,245	15	72.5	+ 2.8	96	3	54	26	25	2.50	- 3.13	1.00	0	9	18	7	6	sw.	Alber K. Smiley.
Morehouseville.	Hamilton.	1,697	3	64.4		94	5	38	23	40	2.73		1.20	0	7	24	3	4	w.	T. C. Remonda.
Mount Hope.	Westchester.	200	14	76.0	+ 2.9	100	6	57	30	31	1.15	- 2.35	1.10	0	6	6	18	7	sw.	W. A. Cornelius.
Newark Valley.	Tioga.	825	24					3.44			3.44	- 0.76	1.20	0	10				sw.	Lyman D. Clinton.
New Berlin.	Chenango.	4						2.57			2.57		0.97	0	9	19	6	6	s.	Roger Greene.
Newcomb.	Essex.	1,600		65.3		96	5	40	1	46	2.96		1.70	0	6				sw.	Edward Spain.
New Lisbon.	Otsego.	1,234	21	67.1	+ 1.6	96	4	40	19	39	4.03	- 1.00	2.12	0	10	11	13	7	s.	G. A. Yates.
New York City.	New York.	314	86	76.0	+ 2.5	98	3	62	28	24	1.55	- 2.99	0.55	0	8	9	14	8	sw.	U. S. Weather Bureau.
North Creek.	Warren.	1,002	3	69.6		96	3	62	19	38	2.74		0.80	0	6	16	10	5	w.	W. G. Kenwell.
Northville.	Fulton.	742	9					1.69			1.69		0.94	0	4				sw.	P. C. Pickard.
Norwich.	Chenango.	1,015	5	70.8		98	6	47	20	33	1.85		1.10	0	4				nw.	P. L. Clark.
Oneonta.	Otsego.	1,112	17	72.3	+ 2.2	98	3	46	19	37	1.45	- 3.27	0.71	0	6	24	3	4	nw.	H. W. Lee.
Oxford.	Chenango.	916	46	70.2	+ 1.8	95	3	46	26	32	2.20	- 1.96	1.12	0	5	10	20	1	w.	John P. Davis.
Port Jervis.	Orange.	470	27	74.0	+ 2.8	101	3	48	19	38	4.14	- 1.18	0.86	0	10	13	14	4	w.	Wilbur F. Crane.
Rome.	Oneida.	445	15	69.2		97	11	46	27	39	5.27		2.28	0	7				sw.	John O'Mara.
Salisbury.	Herkimer.	1,526	14	68.8	+ 0.7	94	5	42	27	35	2.42	- 3.09	1.08	0	6	17	13	1	nw.	Joseph Ryan.
Scarsdale.	Westchester.	200	7	74.5		98	3	52	26	29	2.80		1.30	0	6	18	10	3	sw.	C. H. Wilmarth.
Setauket.	Suffolk.	40	26	74.4	+ 2.3	98	10	55	26	28	2.97	- 1.48	0.78	0	7	20	4	7	sw.	Selaf B. Strong.
Sherburne.	Chenango.	4						3.86			3.86		1.65	0	7				sw.	E. R. Collins.
Southampton.	Suffolk.	36	10	71.8	+ 1.0	93	11	53	26	24	2.47	- 0.25	0.58	0	8	17	13	1	sw.	W. L. Jager.
Southeast Reservoir.	Putnam.	310	16					1.95			1.95	- 2.89		0					sw.	Thomas Manning.
Spier Falls.	Saratoga.	400	10	72.9		102	3	45	27	42	2.24		0.72	0	7	9	14	8	sw.	George E. Field.
Trenton Falls.	Oneida.	751	8					2.97			2.97		1.19	0	6				sw.	C. W. Young.
Triebshill.	Montgomery.	268	8					0.90			0.90		0.40	0	4				sw.	R. S. Marshall.
Utica.	Oneida.	537	45					1.28			1.28	- 3.34	0.64	0	4				sw.	W. E. Young.
Wading River.	Suffolk.	112	5	78.0		100	10	61	26	30	2.40		0.68	0	7	25	2	4	sw.	H. J. Fullerton.
Wappingers Falls.	Dutchess.	110	21	74.6	+ 1.7	100	4	52	26	30	4.62	- 0.69	1.75	0	12	16	15	0	s.	H. C. Townsend.
Warwick.	Orange.	538	17					2.75			2.75		0.58	0	9				sw.	John W. Sly.
Waverly.	Tioga.	824	29	73.2	+ 2.8	102	4	43	20	44	3.37	- 0.51	1.77	0	11	9	16	6	nw.	Hon. J. F. Shoemaker.
Wells.	Hamilton.	1,000	5	69.6		100	3	40	23	43	1.43		0.65	0	4				sw.	Verdon E. Dewey.
West Berna.	Albany.	946	12	69.6	+ 0.0	98	4	41	19	43	3.05	- 1.09	1.25	0	9	13	11	7	sw.	W. J. Haverly.
West Point.	Orange.	167	62	76.1	+ 2.1	104	4	54	26	32	2.97	- 1.65	0.90	0	10	14	6	11	w.	U. S. Military Academy.
Windham.	Greene.	1,520	11	69.0	+ 1.6	97	4	43	19	36	2.12	- 1.48	0.74	0	11	10	20	1	sw.	A. R. Mott.
Pennsylvania.																				
Altoona.	Blair.	1,181	23	76.0	+ 4.4	99	5	53	26	28	2.02	- 1.61	.58	0	7				w.	C. W. Billin.
Bethlehem.	Northampton.	260	10	79.2	+ 5.1	100	3	56	23	29	2.88	- 1.76	.91	0	6	21	6	4	w.	Prof. E. C. Roest.
Clearfield.	Clearfield.	1,107	3	71.2		101	4	42	17	43	1.47		.85	0	8	21	9	1	w.	Raymond C. Ogden.
Drifton.	Luzerne.	1,633	13	71.1	+ 2.3	96	3	45	26	33	4.71	+ .69	1.00	0	15	23	7	1	w.	Eckley B. Cox, Jr.
Emporium.	Cameron.	1,050	24	70.6	- 1.1	95	4	45	27	39	1.64	- 3.15	.49	0	7	18	13	0	w.	T. B. Lloyd.
Ephrata.	Lancaster.	384	11	75.6	+ 1.0	101	3	49	26	44	5.02	+ .62	2.73	0	8	24	4	3	w.	W. L. Frantz.
Everett.	Bedford.	1,080	13	72.8	+ .9	97	4	44	26	39	1.70	- 2.42	.40	0	4	11	20	0	nw.	B. L. Steckman.
George School.	Bucks.	184	4	76.0		103	3	51	26	35	2.85		.96	0	8	12	13	6	sw.	N. W. Swayne.
Gettysburg.	Adams.	600	37	76.7	+ 2.9	103	3	48	26	37	2.17	- 1.30	1.05	0	7	16	14	1	sw.	Col. E. B. Cope.
Gordon.	Schuylkill.	804	7	72.9		100	4	42	26	40	5.86		1.35	0	16	23	6	2	w.	Capt. J. G. Johnson.
Hamburg.	Berks.	380	15	76.0	+ 1.7	101	3	49	26	44	4.28	+ 2.16	4.39	0	6				nw.	W. J. Kalbach.
Harrisburg.	Dauphin.	361	23	77.4	+ 2.9	100	3	55	26	28	1.81	- 2.06	.76	0	6	7	20	4	w.</	

TABLE 1.—Climatological data for July, 1911. District No. 1—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.	
New Jersey.																			
Asbury Park	Monmouth	22	23	74.0	+ 1.1	96	6	60	25	29	3.36	- 1.89	0.87	0	6	10	14	7	S. B. H. Obert.
Atlantic City	Atlantic	16	38	74.6	+ 2.1	96	11	62	19	21	4.15	+ .37	1.67	0	8	14	6	11	U. S. Weather Bureau.
Bayonne	Hudson	50	21	76.6	+ 2.2	99	11	57	25	28	2.94	- 2.19	.97	0	10	15	8	8	John H. Eadie.
Belvidere	Warren	289	20	74.3	+ 1.6	99	3	51	19	34	2.64	- 2.96	.70	0	8	11	12	8	Samuel J. Hixson.
Bergen Point	Hudson	37	14	75.6	+ 2.2	98	3	55	26	29	3.08	- 2.43	.95	0	9	10	13	8	Dr. William H. Mitchell.
Boonton	Morris	413	21								3.06	- 2.40	.64	0	11				Foster Peer.
Bridgeton	Cumberland	30	30	78.2	+ 1.1	102	10	56	19	31	2.15	- 2.28	1.65	0	3	11	10	10	Henry A. Jordan.
Burlington	Burlington	12	27								3.06	- 1.97	1.32	0	6	10	14	7	D. S. B. McCoy.
Canton	Salem	24	17								2.19	- 3.00	1.33	0	4	13	12	6	John H. Maskell.
Cape May City	Cape May	17	27	75.2	+ 1.8	94	11	64	19	20	3.44	- .34	2.18	0	6	12	16	3	U. S. Weather Bureau.
Charlotteburg	Passaic	719	19	72.6	+ 3.1	98	3	42	26	36	5.93	+ 1.05	2.82	0	8	13	12	6	George S. Briggs.
Chatham	Morris	234	9								3.65		1.30	0	6				M. A. Butler.
Clayton	Gloucester	126	18	77.0	+ 1.0	102	3	56	26	32	3.53	- .74	1.77	0	6	10	14	7	William T. Farley.
College Farm	Middlesex	100	16	76.6	+ 3.3	102	3	53	26	32	5.34	+ .37	2.59	0	7	11	13	7	George B. Thrasher.
Culver's Lake	Sussex	848	10								5.98		2.06	0	10	10	13	8	Brice E. Riker.
Dover	Morris	600	27	73.1	+ 1.7	102	3	46	25	34	3.63	- 1.85	1.03	0	7	4	17	10	William C. Harris.
Elizabeth	Union	33	32	79.0	+ 3.5	102	11	56	26	28	2.69	- 2.57	1.11	0	7	10	16	5	William M. Oliver.
Flemington	Hunterdon	187	23	76.8	+ 2.9	101	3	52	26	31	4.05	- .91	1.31	0	8	11	12	8	Hiram E. Deats.
Haddonfield	Camden	75	24	76.3	+ 0.8	101	3	52	26	30	2.06	- 2.24	.97	0	6	14	11	6	Charles F. Richardson.
Hammononton	Atlantic	103	13								4.46	- .23	2.12	0	7				Orville Bassett.
Hightstown	Mercer	119	19	76.0	+ 2.0	103	3	52	19	35	4.43	- 1.54	1.75	0	8	11	13	7	Ernst Wenger.
Highwood	Bergen	90		74.0		98	3	50	26	30	2.67		1.09	0	8				Charles J. Bates.
Indian Mills	Burlington	76	22	75.9	+ .8	104	3	51	19	38	4.04	- .02	1.55	0	9	12	11	8	James Armstrong.
Jersey City	Hudson	15	13	78.3	+ 3.6	102	11	60	25	29	2.35	- 2.43	.91	0	9	9	17	5	Samuel K. Pearson, Jr.
Lakewood	Ocean	54	9	75.2		98	6	55	26	27	2.51		.93	0	8	14	7	10	Ralph Robertson.
Lambertville	Hunterdon	95	25	77.6	+ 3.1	101	3	54	19	31	3.74	- 1.30	1.82	0	6	13	10	8	William R. Bowne.
Little Falls	Passaic	175	8								2.85		.85	0	8				A. Sweetman.
Mahwah	Bergen	312	9								4.55		1.60	0	8				Charles L. Barker.
Moorestown	Burlington	71	49	77.4	+ 2.6	101	3	55	26	30	2.09	- 2.49	1.04	0	4	15	8	8	John C. Beans.
Newark	Essex	140	68	77.4	+ 3.1	103	3	54	26	30	3.72	- 1.01	1.01	0	9	7	17	7	Prof. Wm. Wiener.
New Brunswick	Middlesex	61	58	76.6	+ 2.3	104	3	50	25	35	4.06	- .99	1.60	0	7	15	7	9	William T. Woerner.
Newton	Sussex	678	32	74.4	+ 2.5	98	3	51	19	32	4.87	+ .17	1.28	0	10	12	11	8	F. Vernon Losee.
Northfield	Atlantic		4								4.71		2.31	0	8				William L. Flick.
Paterson	Passaic	80	40	75.7	+ 1.4	100	3	53	26	31	2.58	- 2.75	.86	0	9	8	17	6	Heber A. Probert.
Phillipsburg	Warren	363	14	76.3	+ 2.3	102	3	51	26	34	2.94	- 1.91	0.65	0	9	12	11	8	D. W. Smith.
Plainfield	Union	100	25	76.0	+ 2.1	103	10	51	26	33	3.85	- 1.55	1.29	0	7	13	13	5	John Neagle.
Pleasantville	Atlantic	26	13								5.52	+ 1.38	1.72	0	7	14	8	9	Lincoln Van Gilder.
Pompton Plains	Morris	195	9								4.53		1.19	0	10				M. S. Taylor.
Somersville	Somerset	76	28	77.0	+ 3.1	104	10	52	26	34	6.46	+ 1.33	3.25	0	7	14	8	9	Peter Hardcastle.
South Orange	Essex	200	41	75.6	+ 2.5	98	3	53	26	28	2.55	- 2.57	.99	0	9	11	12	8	Dr. William J. Chandler.
Sussex	Sussex	442	21	74.0	+ 2.3	100	3	46	19	37	3.00	- 1.52	.98	0	9	10	16	5	George Dymock.
Vineland	Cumberland	118	42	77.2	+ .8	102	10	55	19	35	3.92	- .59	1.42	0	7	14	10	7	Alfred Chalmers.
Woodlawn	Cape May	43	20	75.8	+ 1.9	98	10	51	19	34	2.39	- 1.63	1.24	0	5	14	10	7	Prof. H. A. Dodge.
West Virginia.																			
Bayard	Grant	2,500	10	68.2	+ 0.4	95	4	40	23	45	3.18	- 1.35	1.01	0	7	17	13	1	Solomon Clark.
Burlington	Mineral	875	17	73.2	+ 0.2	96	2	45	26	41	2.65	- 1.05	1.40	0	6	9	22	0	J. W. Vandiver.
Lost City	Hardy		5	70.7		90	4	48	23	34	0.40		0.19	0	4	20	11	0	B. D. Hinegardner.
Martinsburg	Berkeley	435	19	78.2	+ 2.9	102	3	51	26	41	2.44	- 1.71	0.90	0	6	21	10	0	G. W. Van Metre.
Romney	Hampshire	824	14	75.8	+ 0.5	101	4	46	26	43	2.59	- 0.89	1.05	0	6	26	5	0	John C. Linthicum.
Upper Tract	Pendleton	1,230	14	72.4	- 0.2	95	2	45	23	43	3.72	+ 0.10	1.63	0	8	0	31	0	J. M. Mallow.
Maryland.																			
Annapolis	Anne Arundel	45	33	80.9	+ 2.6	98	6	61	23	28	1.03	- 4.06	0.57	0	5	25	5	1	U. S. Naval Academy.
Baltimore	Baltimore	115	41	79.2	+ 1.9	98	6	61	19	24	3.53	- 1.29	2.06	0	6	16	11	4	U. S. Weather Bureau.
Cambridge	Dorchester	25	13	81.4	+ 2.5	103	3	58	19	35	0.93	- 4.35	0.58	0	3	15	15	1	T. E. Keenan.
Cheltenham	Prince George	230	11	77.9		99	3	52	19	34	0.78		0.46	0	2	23	7	1	J. E. Burbank.
Chestertown	Kent	80	26	78.4	+ 2.5	98	3	58	26	28	3.71	- 0.45	1.70	0	9	20	11	0	M. W. Thomas.
Cheswille	Washington	530	14	76.1	+ 1.6	99	3	49	26	33	3.23	- 0.63	1.60	0	6	14	17	0	D. Paul Oswald.
Clear Spring	do.	650	14	74.6	+ 0.8	97	4	53	23	31	4.68	+ 0.42	3.25	0	7	13	18	0	W. W. Thomas.
Coleman	Kent	80	13	78.4		99	3	59	23	28	3.93	- 0.65	1.15	0	7	22	7	2	J. S. Harris.
College Park	Prince George	170	21	76.6	+ 1.3	103	3	50	19	40	0.90	- 3.75	0.72	0	3	19	9	3	Prof. H. J. Patteson.
Cumberland	Allegany	700	37								0.39	- 2.83	0.20	0	4				J. W. Frantz.
Darlington	Harford	300	19	76.6	+ 1.9	97	3	55	19	32	4.47	- 0.30	1.65	0	7	21	9	1	Prof. H. F. Galbreath.
Denton	Caroline	42	16	78.1	+ 1.5	102	3	52	19	41	1.92	- 2.16	0.88	0	6	25	2	4	H. B. Mason.
Easton	Talbot	35	20	78.0	+ 1.7	96	3	55	19	31	2.38	- 2.08	0.86	0	9	17	14	0	Henry Shreve.
Emmitsburg	Frederick	720	38	77.0	+ 1.7	101	11	56	26	36	2.37	- 1.43	1.75	0	5	26	3	2	Jno. H. Eckenrode.
Fallston	Harford	450	41	75.2	+ 0.9	97	3	56	18	32	2.81	- 1.58	0.96	0	10	1	28	2	J. H. Curtiss.
Frederick	Frederick	275	34	77.6	+ 1.4	100	3	54	19	32	6.07	+ 2.23	3.02	0	11	18	9	4	Chas. S. Birely.
Frostburg	Allegany	1,929	10	73.9		99	4	51	17	34	3.01		1.75	0	8	22	9	0	R. A. Walter.
Great Falls	Montgomery	200	20								1.34	- 2.84	0.60	0	4	18	7	6	J. W. Bissett.
Green Spring Furnace	Washington	450	19	77.6	+ 2.2	102	3	47	19	43	1.74	- 2.16	0.71	0	6	25	6	0	E. G. Kinsell.
Keedysville	do.	400	7	77.6		105	3	49	26	41	2.43		0.92	0	9	24	7	0	J. A. Miller.
Lake Montebello	Baltimore	200	2	78.1		99	3	57	23	30	2.20		0.81	0	7	21	7	3	Martin L. Dobler.
Laurel	Prince George	150	17	77.0	+ 1.1	102	3	51	23	37	2.09	- 2.75	1.60	0	4	13	18	0	Dr. T. M. Baldwin.
Leonardtown	St. Mary's	100	1	79.8		106	3	58	23	34	5.57		1.63	0	6	18	3	10	Brother Fidelis.
Monrovia	Frederick	630	24	77.2	+ 1.0	100	6	53	23	35	3.50	- 0.95	1.14	0	7	20	9	2	J. H. Lawson.
Pocomoke City	Worcester	37	18	79.0	+ 1.1	97	11	61	23	27	2.97	- 0.82	0.87	0	7	23	3	5	Hon. R. M. Stevenson.
Porto Bello	St. Mary's	38	6	81.4		103	10	60	19	34	0.04		0.03	0	2	23	0	8	Mrs. Clara C. Hyatt.
Princess Anne	Somerset	17	18	76															

TABLE 1.—Climatological data for July, 1911. District No. 1—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Delaware.																				
Delaware City.....	Newcastle.....	20	9	77.6	.....	96	3†	60	26	27	4.05	.....	2.78	0	4	28	3	1	sw.	H. Morton Price.
Dover.....	Kent.....	40	23	78.8	+ 2.0	102	3†	55	19	33	1.20	- 3.66	0.46	0	5	19	9	3	sw.	Thos. F. Dunn.
Milford.....	do.....	20	27	78.2	+ 1.4	100	10	58	19†	30	1.97	- 1.77	0.83	0	11	18	9	4	sw.	Chas. J. Holzmüller.
Millsboro.....	Sussex.....	20	19	77.6	+ 1.3	102	10	49	19	37	3.93	- 1.13	2.06	0	8	20	7	4	ne.	Rev. L. W. Wells.
Seaford.....	do.....	40	18	77.7	+ 1.5	98	3†	58	19	30	3.21	- 1.93	1.33	0	8	26	2	3	s.	E. B. Brown.
District of Columbia.																				
Washington.....		112	41	78.7	+ 1.9	99	3	56	19	31	4.47	- 0.18	2.56	0	7	14	13	4	s.	U. S. Weather Bureau.
Virginia.																				
Dale Enterprise.....	Rockingham.....	1,350	32	74.2	+ 0.3	103	3	44	26	48	5.31	+ .89	2.10	0	11	11	18	2	s.	Rev. L. J. Heatwole.
Eastville.....	Northampton.....	15	1	80.2	+ 1.7	101	11	59	26†	32	1.77	- 2.73	1.15	0	6	17	10	4	sw.	Thos. B. Robertson.
Fredericksburg.....	Spottsylvania.....	100	22	77.5	+ 0.4	97	3	54	19†	32	2.03	- 2.55	.92	0	6	18	13	0	se.	S. G. Howison.
Lincoln.....	Loudoun.....	500	10	78.9	+ 3.0	104	2†	50	26	41	1.51	- 2.27	.55	0	5	18	11	2	nw.	Dr. Geo. Roberts.
Mount Weather.....	do.....	1,726	7	73.4	+ 2.0	91	3	57	18	22	1.25	- 3.41	.56	0	7	11	17	3	w.	U. S. Weather Bureau.
Quantico.....	Prince William.....	16	14	80.0	+ 3.3	101	3	53	26	32	3.64	.....	1.41	0	4	24	7	0	se.	Rich., Fdksbg. & Pot. R. R.
Staunton.....	Augusta.....	1,380	19	75.2	+ 1.1	98	3	50	26	34	4.61	+ .85	2.35	0	10	8	21	2	sw.	Ernest Nothnagle.
Warsaw.....	Richmond.....	160	19	78.1	+ 0.7	98	11	58	22	28	4.95	+ .24	1.50	0	7	9	19	1	s.	C. H. Constable.
Woodstock.....	Shenandoah.....	927	15	76.2	+ 0.3	101	6	48	26	42	3.61	- .16	1.40	0	8	15	12	4	w.	Mrs. A. G. Artz.

s, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for July, 1911. District No. 1, North Atlantic States.

Stations.	Watershed.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
<i>Maine.</i>																																		
Ashland	St. John			.09	.05		.16			.16	.22					.32	.35		1.22	T.	.04	T.	.49		.06	.18	T.			.82	.18	.09	4.43	
Bar Harbor	Coast			.03	.03		.20										.03	1.37				T.	.20	.95	.05				1.15	.03	T.	.37	4.41	
Cornish	Saco						.08									.01		.25	.63		.13		.14	.31				2.22	.07			T.	3.84	
Danforth	Penobscot						T.											.30					.32	.35	.20				.55	.25			1.97	
Eastport	Coast		T.	T.			.07			T.		.46						1.73			T.		.14	.42	.09				.08	.01	.01	.49	3.50	
Eustis	Kennebec		.01	.07			.04	.06								.28	T.	T.	.39			.09	.05	.14	T.	.07	.69	T.	T.	T.	1.56	T.	T.	3.45
Fairfield	do															.20		.14			.12			*	.65				1.50	.14			2.75	
Farmington	do						.06									.01		.01	.33		.04	.01	T.	.30		T.	T.		.05	1.87		T.	2.68	
Gardiner	do						.17	.03									.17	.12	1.33		.09	.07	.68	.17	.48	.06			1.25	1.33	T.		5.04	
Greenville	do			.51			.04									.07		.17	.14		.05	T.	.36	.01	.24				.66	1.41		.38	4.04	
Houlton	St. John									.25								.57			.25			.44					.60				2.16	
Howe Brook	Penobscot											.70											.40		.30				.70		.35		2.45	
Lewiston	Andr'se's g'in				T.		.51	.13							T.		.02	.32	.19		.27		.80	.38	.23			2.03	.28		.48		5.61	
Madison	Kennebec						.19										.11	.16			.04		.72	*	.43				2.98	.28			4.94	
North Bridgton	Saco						.38	.05						T.			.37	.36			.37	.19	.02	.05	.16	.22	T.		1.01	.71			3.89	
Oquossoc	Andr'se's g'in			.13			.50									.70			.35	.15	.20		.60	T.	1.00	.10			1.00	.85			4.68	
Orono	Penobscot			.39				.25									.10		.20			.60		.10	.90	.33				1.08	.50			4.45
Patten	do		.07				T.																											

TABLE 2.—Daily precipitation for July, 1911. District No. 1—Continued.

Stations.	Watershed.	Day of month.																														Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Connecticut.																																		
Bridgeport.	Coast.												.17		.06			.37	T.		T.	.69			.47	.09	T.		.21		T.		2.06	
Canton.	Connecticut.					.03	.04						.18		.06			.36			T.	.69			.47	.09	T.		.21		T.		2.90	
Colchester.	Coast.					.71						.07			T.			.24			T.	.11			.123				.48	.13	T.		3.01	
Cream Hill.	Housatonic.					.17	.61											2.10							.16		.01		.65	.62	.02	.01	5.35	
Danielson.	Coast.			T.				.40					.05					.27				.03			.12	.25			.78	.03			2.93	
Falls Village.	Housatonic.				.01	1.29									T.			1.22				.70			.127		.03	.02	.38	.20	T.		5.12	
Hartford.	Connecticut.	T.			.03	T.					T.		.52		.01			.98			T.	.01	.02		.77				.51	.11	.01		2.97	
Hawleyville.	Housatonic.		.06												.04	.01		.50	.03					.14	.107	.12	.04		.25	.04			2.54	
Lake Konomoc.	Coast.																.04				.07			.95	.35			.60				2.01		
New Haven.	do.		T.												.04			.90					.17	.01		.63			.42	T.	T.		2.17	
New London.	do.												T.					.18					.17						.78				2.18	
North Grosvenor Dale.	do.					.81							T.						.27		.67		.02		1.09				.75				3.61	
Norwalk.	do.			.20											.10			.21				1.09	.02		.47				.15				2.24	
Southington.	do.		T.					.05			.90				T.			.10				.15	T.		.90	.10	T.		.35	.10	T.		2.65	
South Manchester.	Connecticut.												.85			.01		.62					.03		.35				* .74				2.60	
Storrs.	Coast.				T.		.14							T.	T.			.24				T.			1.00	.25			.59	.08			2.30	
Wallingford.	do.														.03			.05							.11	.57		.22	.30				2.31	
Waterbury.	Housatonic.										.07				T.	T.		2.15			T.	.21	.07		.53		.04		.35	.09	.03		4.54	
West Simsbury.	Connecticut.	T.				.07	.36						.85		T.			.25			T.		T.		1.53		T.		.51	.09	.02		3.68	
New York.																																		
Addison.	Susq'hanna.			.16	.59	T.					.14	T.					.01	.79			.42		.16		.15		.02				.13		2.57	
Albany.	Hudson.	T.			T.	.01					.34	T.			T.	T.		.01	1.10		.08	.30	.16		.85		.09		.18	.03	.07		3.16	
Alfred.	Susq'hanna.				.23	.49					T.	T.					.01	1.10			.50	.30	.08		.34		.47				.03		3.25	
Amsterdam.	Mohawk.				.16	.05					T.						T.				.17				.23				* .45	.15			1.15	
Athens.	Hudson.			T.	T.	.40					.10	T.			.02	.04		2.00			.06		.02		.38		T.		.16	.32	.06		3.56	
Ballston Lake.	do.			T.	T.	.06					T.						T.	.06			.18				.33				* .58	.12			1.33	
Bedford.	Coast.														.35	.01	.01	.34				1.20	.09		1.06				.10	.02			3.18	
Binghamton.	Susq'hanna.				T.	1.00					.03	.09					.68				.28	.28	.05		.12		.11			.02			2.66	
Blue Ridge.	Hudson.						.04										.15	.33			.07				.74					.73			2.06	
Bouckville.	Susq'hanna.				1.24						.44						.50	1.96			.40				.28					.23			5.05	
Carmel.	Hudson.														.12		.28				.79	.25			.72	.52			.11				2.79	
Chatham.	do.			.33		.02	T.				.25	.20			.05	.05	.26	.14					.06		.41		T.	.06	.15	.25	.05		2.28	
Cooperstown.	Susq'hanna.				.05	.85					.35					.02	.85	.07			.32	.24			.19				.05		.04		3.03	
Corinth.	Hudson.														.15	.35	.25				.08				.65				.05		1.45	.12	3.05	
Cortland.	Susq'hanna.							.03			.02	.03	.04				* 1.76	.27			.51		.09		.19					.06			3.00	
Cutchoque.	Coast.												.45				.05					.64	T.		.50	.40			.59				2.63	
De Ruyter.	Susq'hanna.				T.						T.	T.					.83	1.32			.54	T.	T.		.62					.10			3.41	
Glens Falls.	Hudson.	.04									.18	T.					.28	.18	.38			.17			.54				.04	.73	.02		2.56	
Gloversville.	Mohawk.																.03	T.			.12				.33					.40	.08		0.96	
Greenfield Center.	Hudson.																.26	.03			.02				.52				.07	.70	.03		1.63	
Greenwich.	do.																.13				.13				.34		.02		.15	.71	.05		1.80	
Griffin Corners.	Delaware.							.11				.07					.21				.04				.23				.05	.12			2.92	
Haskinsville.	Susq'hanna.			.09	.06						.09						.93				.45	T.	.14		.39	T.	.04			.15				2.19
Homer.	do.					.27					.03	T.					.45	1.40			.49		.47	T.	1.28	T.			.10				4.49	
Hosick Falls.	Hudson.	.08					.16										T.		.58		.08	.01		.03	1.20	T.	.16		.74	T.	.03		3.07	
Indian Lake.	do.																.50		.05					.10					.50				1.15	
Jeffersonville.	Delaware.					.46					T.				.08	.39		.29			.15		.04	T.	.50		T.	.17	T.	.20			2.28	
Knowlton.	Hudson.	.20															.16							1.06					.78				2.20	
Liberty.	Delaware.					.45	T.									.40	.20	.25			.30			.70	.10	.05				.21			2.66	
Little Falls.	Mohawk.																.22	T.			.55			.92		.07			.54				2.30	
Mechanicsville.	Hudson.	T.				.62											.91			.07	.03	T.	T.	.21					.07				2.45	
Mohawk Lake.	do.			.02		.89											.22						.10		1.00	.12		.02	.12	.01			2.50	
Morehouseville.	Mohawk.																.40	.20			.45				.42	.04	.02				1.20		2.73	
Mount Hope.	Coast.										T.	T.			.25			.40			1.10				.65				.40	.35			3.15	
Newark Valley.	Susq'hanna.				.64	.24	.06				.09	T.					.10				.33		.35	.12	.38		.03						3.44	
New Berlin.	do.						.06				.26	T.					.02	.08	.97	.16			.44		.26			T.					2.57	
Newcomb.	Hudson.	.16									.87	T.	.10				.02	1.70			.26			.40					.34				2.96	
New Lisbon.	Susq'hanna.				.10		.06				.87	T.					.02	2.04	.08		.27		.17		.22			.22					4.03	
New York City.	Coast.						T.				.03	T.			.14			.46			.17	.38	.09				T.		.06	T.			1.55	
North Creek.	Hudson.	.78													.18	.22		.25			.16				.80				.60				2.74	
Northville.	do.																.25								.29				.40				1.69	
Norwich.	Susq'hanna.																.10				.25		.21		.39				T.				1.85	
Oneonta.	do.			.71													.03				.28	.18			.30		T.			.1				

TABLE 2.—Daily precipitation for July, 1911. District No. 1—Continued.

Stations.	Watershed.	Day of month.																																Tot. al.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
<i>Pennsylvania—Con.</i>																																		
Ephrata	Susq'hanna.	T.					2.56	.18					.31			.24		1.16			T.		.20		.31						.07		5.02	
Everett	Junata						.85											.27					.18	.40		.46							1.70	
Forks of Neeshaminy	Delaware														.01	.18		.90					.00	.50		.46							2.14	
George School	do.															.30		.96				.05	.11		.62								2.85	
Gettysburg	Potomac						.24	.35				.02			.10			1.05					T.		.34									2.17
Girardville	Susq'hanna.		.23				.17				.31	.56	.04		.08	.82	T.	1.50	.15			.28			.78					.03	.06		5.07	
Gordon	do.			T.			.51	.02				.83	.03		.10	.96	.35	1.35	.03		.04	.35	.04		.90				.03	.03	.29		5.86	
Hamburg	Schuylkill.						.84								1.00	.39		1.60												.18	.27		7.28	
Hanover	Susq'hanna.						.81								.03	.17		1.58	.40						.53								3.30	
Harrisburg	do.					T.	.72						T.		T.			.76			T.		.03		.01				T.	.01	.08		1.81	
Huntingdon	Junata				.07		.08				.57		T.		.08	.02		.21			T.		.09	.03		.45			.12		T.		1.72	
Hyndman	Potomac						.30					T.						T.				T.			.55					T.			.91	
Kennett Square	Coast												.12		1.90			2.66				.06	T.		.05						.05		5.82	
Lancaster	Susq'hanna.						.62	1.02					.13		.02			.92							.65								3.53	
Lansdale	Schuylkill.																	1.20					.09	.02		1.24							2.64	
Lawrenceville	Susq'hanna.				.65		.05				.05						.80	1.05				.40	.05					.05			.30		3.40	
Lebanon	do.						2.15									.25		.60				T.			.68								3.83	
Le Roy	do.		.05				.25				.12	.01	.01		.01			13	2.44			.44	T.	.05		.33	.01	.01			.15		3.98	
Lewisburg	do.						.10																											

TABLE 2.—Daily precipitation for July, 1911. District No. 1—Continued.

Stations.	Watershed.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
<i>West Virginia.</i>																																		
Bayard	Potomac			T.				.22	1.01			T.	.73					.32					.08		.72						.10	T.	3.18	
Burlington	do							T.	T.		1.40	.15	.10					.50							.20						T.	.30	2.65	
Harpers Ferry ||	do								.72				.82		.95			.46							.22	.25					.11		3.53	
Lost City	do							.10				.06						.19													.05		0.40	
Martinsburg	do				.32			.90		T.		.15	.24					.75							.08					T.			2.44	
Romney ||	do					T.		.09	T.			.32	1.05		T.			.55					T.		T.	.46					.12		2.59	
Upper Tract	do				.90	.08		.18					1.05		.18			.37					T.		.32						.06	1.63	3.72	
<i>Maryland.</i>																																		
Annapolis	Coast										.27				T.			.57					.33	.04		.12							1.03	
Baltimore	do			T.				.28	T.				2.06		.25	T.		.11					.46		.37						T.		3.53	
Cambridge	do			T.											.23			.12							.58								0.98	
Cheltenham	do								T.	T.								.32							.46								0.73	
Chestertown	do			.06				.45	.23				.65		.09			.30					1.70	T.	.16	.07							3.71	
Cheswille	Potomac							1.60					.12	.02				1.20						T.	.19						.10		3.23	
Clear Spring	do					.09		3.25							.22	.02		.88					T.	.10							.12		4.68	
Coleman	do				T.			.09					.62		.17		.02	.88					.00		1.15						T.		3.93	
College Park	do								T.				.08				T.	.72					.10										0.90	
Cumberland	do							.10				.01					.20								T.	.08				T.			0.39	
Darlington	Coast						.54	T.	.02			.36			T.	.64		1.65					.03		1.23						T.		4.47	
Denton	do			.01													.31							.17		.10	.45	.88					1.92	
Easton	do			.29				.12							.25	.05		.14						.21		.86	.08	.38					2.38	
Emmitsburg	Potomac							.40							.07			.75													.13		2.37	
Fallston	Coast			.12				.45	.05				.81		.17	.04		.15					.03	.04		.96							2.81	
Frederick	Potomac			.25				2.82	.20	T.		T.	.32		.38			1.12				T.	.06	.09		.77			.01			.05	6.07	
Frostburg	do			.07				1.75	.06	.36	.02							.38							.27						.10		3.01	
Great Falls	do							.60									.11							.35									1.34	
Green Spring Furnace	do							.35	.27						.25			.71							.12						.04		1.74	
Keedysville	do							.92	.20			T.	.05		.06			.62					.39	.02		.17					.09		2.43	
Lake Montebello	Coast			.07				.65	T.				.81		.10	T.		.27						.18	T.	.27					T.		2.20	
Laurel	do									.07					1.60			.27								.15							2.09	
Leonardtown	do							1.63				.73			1.49		.60									.22							.90	5.57
Monrovia	Potomac							.63	.12				.20		.33			1.00						.08		1.14					T.		3.50	
Pocomoke City	Coast								.03				.87		.46			.58								.31		.11				.61	2.97	
Porto Bello	do																.03								.01								0.04	
Princess Anne	do												.06		.11			1.47							.19	.09	.01					.25	2.18	
Rockville	Potomac							.02	.14				.01	T.	.18		.08	.13					.31										1.76	
Salisbury	Coast							.15			.06	.57	.18		.39			.07							.08	.08	.05					.33	1.50	
Solomons	do							.72	.45	T.		T.	T.		.13		T.	.49					.04		.20								2.08	
State Sanatorium	Potomac							T.	T.				.88		.05	T.		.77						.30	.03	.36						.05	2.39	
Sudlersville	Coast			T.	T.										.05			.40															1.15	
Takoma Park	do							.12	.13				.05		.01			1.38							.19								1.87	
Taneytown	do								1.58				1.16		.11	.54		.10						.28		.84							4.61	
Towson	do							.48	T.				.31					.38						.12	.04	1.01							2.34	
Van Bibber	do							.18				.15						.12							.31							.14	0.90	
Westernport	Potomac																	.12															0.90	
Westminster	Coast			.29				1.51	.04			.02			.18		1.28	.16					.05	2.50							.03		6.06	
<i>Delaware.</i>																																		
Delaware City	Coast			T.								T.		.78		.16		2.78					T.			T.	.33	T.					4.05	
Dover	do												.46		.02			.03							.61		.08						1.20	
Millford	do							.10	.04			.10	T.		.09			.83					.26	.03	.02	.02	.33	.15					1.97	
Millsboro	do							.50				T.	2.06		T.		.16		.57						.28		.30				.02		3.93	
Seaford	do							.23	.60				T.				.54		1.32	.02			.13	T.		.20		.16					3.21	
<i>District of Columbia.</i>																																		
Washington	Coast							.88	T.			T.	.08		.27		.10	.54					2.56			.04		T.				T.	4.47	
<i>Virginia.</i>																																		
Dale Enterprise	Shenandoah				.60			2.10	.10	T.		.55	.02					.75					.06	.01		.45		T.			.04	.63	5.31	
Eastville	Coast											.07	.21		.10	T.		1.15					T.			.03	.21						1.77	
Fredericksburg	Rappahan'k							.22	.11			.08	T.		T.			.02						.92		.68							2.03	
Lincoln	Potomac							.32					.18					.55								.04							1.51	
Mount Weather	do			T.				.06	.10	T.	T.	.01	T.		.56			.15						.29		T.					.08		1.25	
Quantico	do							1.41	T.									1.33						.43		.47							3.64	
Staunton	Shenandoah				.05			2.35	.11		1.12	.24		.15				.22							.22						.03		12	4.61
Warsaw	Rappahan'k																																	

TABLE 3.—Maximum and minimum temperatures at selected stations, July, 1911. District No. 1, North Atlantic States.

Date.	Maine.												Concord, N. H.		Massachusetts.								Providence, R. I.		Connecticut.			
	Eastport.		Greenville.		Orono.		Portland.		Presque Isle.		Rumford.		Max.	Min.	Amherst.		Boston.		Middleboro.		Nantucket.		Max.	Min.	Cream Hill.		Hartford.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			Max.	Min.	Max.	Min.
1.....	79	61	86	56	88	54	88	63	.....	.....	88	58	89	56	91	53	88	66	87	51	80	59	88	63	88	61	88	61
2.....	73	52	86	66	89	61	88	68	.....	.....	90	65	93	64	96	63	96	71	91	62	77	65	91	70	91	64	93	67
3.....	62	52	93	68	90	66	92	71	.....	.....	100	70	101	70	102	70	102	78	94	66	75	64	94	70	96	74	100	74
4.....	72	53	92	68	95	66	103	79	.....	.....	101	71	102	72	104	72	104	74	91	69	77	66	94	71	98	72	99	72
5.....	84	54	90	63	91	63	82	67	.....	.....	98	67	101	69	102	72	95	76	93	70	76	66	91	74	96	71	96	74
6.....	79	54	93	68	96	64	97	68	.....	.....	100	69	99	72	98	71	101	72	93	71	77	66	97	70	93	72	98	73
7.....	74	61	78	58	95	63	77	64	.....	.....	84	60	87	61	90	70	79	69	80	68	74	61	81	65	84	68	86	69
8.....	80	56	84	46	83	48	79	59	88	45	88	52	87	55	86	58	83	65	82	45	76	60	80	59	78	60	86	61
9.....	76	57	89	58	90	61	91	63	84	60	92	60	94	62	95	60	94	66	85	57	77	63	89	62	91	58	95	63
10.....	69	56	93	72	94	60	94	71	88	65	100	69	101	66	100	73	98	78	99	69	88	67	99	77	95	71	100	76
11.....	67	56	93	70	94	63	90	70	99	65	96	71	96	72	98	70	100	80	97	69	85	68	97	78	91	70	97	75
12.....	85	55	86	67	95	65	96	73	90	64	92	66	95	69	96	70	96	78	92	65	88	68	91	75	89	68	94	64
13.....	82	63	80	53	94	55	86	67	85	50	90	58	84	61	87	60	89	73	87	60	82	67	86	67	78	56	84	68
14.....	77	59	78	51	84	50	76	62	83	45	82	52	82	55	78	56	79	71	82	56	76	66	80	68	77	54	74	65
15.....	72	56	81	51	83	54	78	63	85	45	84	56	87	59	88	54	88	69	85	58	80	63	83	66	81	56	85	60
16.....	67	54	83	54	83	58	73	62	85	56	83	59	87	62	89	67	88	67	84	57	78	63	79	64	83	62	87	67
17.....	68	52	68	57	83	61	65	60	83	60	72	63	77	66	83	67	73	66	83	66	78	64	79	68	75	60	81	68
18.....	58	54	74	58	73	60	71	59	71	58	76	60	82	62	85	60	80	66	85	68	80	64	84	68	77	55	80	63
19.....	80	58	82	56	84	57	80	60	84	60	80	56	84	53	84	52	80	63	85	56	79	66	85	64	80	55	83	60
20.....	73	55	77	49	85	49	76	58	82	50	72	54	80	52	84	60	82	65	81	51	78	64	82	65	81	60	85	65
21.....	70	53	80	51	82	53	75	57	83	50	80	54	81	55	81	56	79	65	75	59	76	66	76	66	78	56	80	65
22.....	62	54	74	54	83	56	72	60	76	52	76	58	81	56	82	60	84	65	80	61	75	67	82	66	76	52	79	65
23.....	77	54	73	47	80	49	77	56	77	50	77	48	81	51	82	53	83	63	81	49	78	65	81	62	78	56	81	57
24.....	68	56	66	47	80	50	69	62	73	47	69	53	84	63	86	66	81	69	76	65	74	67	76	67	81	58	83	68
25.....	74	60	70	55	76	60	75	58	76	68	73	58	72	58	83	56	80	64	78	65	75	62	77	62	68	55	74	60
26.....	71	57	72	55	86	50	75	54	73	55	75	52	76	51	80	49	81	60	78	46	77	60	78	56	73	51	79	56
27.....	72	53	77	50	78	49	74	55	80	50	80	51	78	49	81	49	72	62	79	51	73	61	77	58	75	54	78	56
28.....	68	55	72	50	79	52	65	58	84	50	70	57	63	58	82	58	65	67	67	57	68	63	64	58	71	52	65	57
29.....	68	56	66	58	75	58	67	61	73	60	66	61	75	58	80	58	79	63	79	58	74	62	78	61	72	55	80	59
30.....	66	54	80	57	79	56	78	60	85	60	58	77	59	76	63	79	68	81	65	75	66	81	66	77	58	81	67	67
31.....	73	53	84	56	88	60	87	64	86	58	86	52	90	56	90	58	87	66	88	59	83	65	89	64	82	61	89	61
Max..	72.5	55.6	80.6	57.1	85.6	57.1	80.5	63.0	.....	.....	83.9	59.3	86.0	60.4	87.7	61.4	86.0	68.2	84.5	60.3	77.6	64.3	84.2	66.1	82.4	60.5	85.8	65.0

Date.	New York.												Pennsylvania.								Atlantic City, N. J.							
	New Haven, Conn.		Addison.		Albany.		Binghamton.		Indian Lake.		Little Falls.		New York.		Everett.		Harrisburg.		Philadelphia.		Scranton.		State College.		Wellsboro.		Max.	Min.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.....	85	62	92	49	88	59	86	53	89	42	84	54	84	68	90	56	88	63	88	67	84	56	87	55	90	45	81	65
2.....	91	69	101	64	96	69	93	66	100	61	89	66	94	70	93	54	89	70	94	70	94	66	94	72	90	61	86	71
3.....	98	71	104	64	102	73	97	67	103	59	94	72	98	78	95	76	100	75	99	76	99	70	96	72	101	62	82	72
4.....	90	71	106	64	104	76	98	71	102	61	94	73	93	75	97	67	98	77	96	76	99	72	99	70	101	61	79	72
5.....	92	73	101	67	98	74	97	68	102	51	97	66	92	75	97	65	97	78	94	76	96	74	96	70	99	64	80	72
6.....	95	73	100	67	96	76	96	67	95	65	93	77	92	74	93	65	98	74	95	75	98	73	94	71	100	61	80	71
7.....	86	70	88	66	85	67	84	68	86	55	88	67	87	71	90	67	93	70	91	75	86	70	87	69	86	65	84	68
8.....	79	65	93	59	85	61	84	68	85	40	87	59	77	67	80	66	80	69	86	70	83	70	84	67	90	59	76	67
9.....	90	64	100	65	93	66	95	65	99	62	92	65	88	68	90	69	91	73	90	71	93	68	92	69	95	64	80	71
10.....	95	74	98	68	97	71	94	71	96	60	96	73	95	76	90	70	96	75	97	76	95	71	93	72	97	63	87	75
11.....	96	75	96	66	94	72	92	67	91	69	94	70	95	77	88	60	94	74	97	79	92	67	89	68	88	64	96	75
12.....	87	74	93	63	93	71	87	62	83	58	80	65	86	74	87	71	92	75	86	76	91	68	89	68	92	59	85	70
13.....	88	70	86	50	83	65	80	56	80	46	78	56	86	71	83	62	88	72	91	74	82	63	85	59	85	47	82	73
14.....	77	64	87	50	83	59	82	57	81	40	82	61	76	66	85	60	84	67	80	67	79	64	83	62	86	50	76	68
15.....	80	59	90	55	85	61	84	59	82	42	83	57	79	63	86	52	88	62	87	66	85	58	86	58	81	51	80	65
16.....	81	70	93	51	87	67	86	61	84	44	87	60	80	69	88	54	87	65	88	67	86	59	87	62	90	48	82	72
17.....	75	70	78	61	78	68	74	58	72	57	72	60	74	68	80	67	78	65	79	67	76	63	79	63	77	61	79	69
18.....	81	64	82	46	80	63	74	54	75	54	78	56	79	63	79	52	79	62	80	66	75	58	79	59	81	41	80	65
19.....	82																											

TABLE 3.—Maximum and minimum temperatures for July, 1911. District No. 1—Continued.

Date.	New Jersey.								Martinsburg, W. Va.		Maryland.								Millsboro, Del.		Washington, D. C.		Virginia.					
	Bridgeton.		Hightstown.		Phillipsburg.		Sussex.				Baltimore.		Darlington.		Frederick.		Western Port.						Fredericksburg.		Staunton. §§		Woodstock.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max. §§	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1....	90	61	89	59	90	62	88	55	92	59	87	66	86	62	86	58	88	55	89	60	86	62	87	59	89	59	90	54
2....	96	66	99	64	100	66	96	65	100	67	97	73	92	61	98	68	96	62	101	64	98	67	95	63	96	63	96	62
3....	100	70	103	69	102	70	100	67	102	70	96	78	97	70	100	71	95	63	100	72	99	74	97	74	98	66	98	66
4....	97	73	98	73	102	74	100	70	102	70	95	78	90	73	96	75	98	67	97	73	97	75	95	71	95	70	97	68
5....	98	73	97	71	100	74	95	73	99	71	97	76	91	74	98	74	97	66	98	71	98	77	94	73	93	66	100	66
6....	100	75	97	71	99	70	96	70	101	69	98	76	92	70	98	68	98	64	99	75	98	76	96	73	96	69	101	65
7....	90	73	91	73	92	71	87	68	95	74	92	68	90	.....	97	74	93	67	98	73	95	69	96	71	96	70	96	67
8....	87	69	83	73	87	65	80	65	88	69	80	72	.....	67	84	70	85	69	79	71	84	70	88	69	86	60	91	67
9....	97	71	94	68	94	64	92	57	96	69	90	74	89	71	93	76	92	69	96	72	94	74	92	70	90	68	94	68
10....	102	73	101	70	100	71	98	70	101	74	97	77	93	71	97	75	94	67	102	72	97	74	95	74	93	73	97	72
11....	102	73	101	69	98	70	95	68	97	71	96	81	94	73	95	73	90	68	98	68	93	75	95	70	88	69	92	70
12....	88	72	87	71	94	71	93	69	92	70	88	70	86	70	89	70	92	67	86	73	89	72	86	69	89	69	91	70
13....	92	70	91	66	90	66	85	62	92	70	89	73	85	68	87	73	89	62	88	71	88	72	91	69	88	65	87	65
14....	83	69	82	62	77	63	80	60	85	64	82	68	81	65	83	64	89	60	76	67	84	69	84	67	87	64	86	65
15....	88	59	88	58	88	59	84	55	90	64	87	68	84	61	89	67	91	50	85	63	92	69	90	62	88	54	90	53
16....	92	63	89	65	91	68	85	60	92	61	87	73	85	67	90	64	91	54	85	64	90	70	90	63	88	58	91	53
17....	83	67	79	65	74	66	75	64	88	65	82	71	78	65	83	66	89	64	84	66	83	70	85	70	83	65	85	63
18....	81	63	83	57	81	58	79	58	88	59	79	66	78	60	80	58	78	54	84	65	78	60	80	65	79	53	79	54
19....	87	56	85	52	85	52	83	46	86	55	84	61	81	55	84	54	85	50	83	49	86	56	86	54	81	55	88	52
20....	91	63	89	59	87	61	84	59	95	58	88	70	87	55	89	66	93	60	86	69	92	69	93	64	89	62	94	78
21....	90	68	79	64	87	62	83	63	91	68	90	70	84	55	89	68	92	66	92	70	89	61	93	66	90	65	91	63
22....	85	67	82	62	80	59	78	60	89	65	83	69	81	64	83	65	82	62	84	64	82	64	84	58	88	66	85	61
23....	86	58	85	53	86	54	82	51	95	54	87	64	83	56	87	56	90	48	90	56	88	58	87	56	86	53	90	51
24....	96	70	91	63	91	65	86	68	92	63	91	73	86	70	94	72	86	67	94	72	95	75	95	72	90	62	95	68
25....	82	59	79	59	77	56	79	57	83	60	80	66	77	60	80	60	78	55	83	64	82	65	80	59	80	58	83	58
26....	82	57	82	52	83	51	79	47	86	51	81	63	82	57	83	54	80	46	76	59	84	58	83	54	80	50	82	48
27....	83	59	80	56	85	56	80	52	86	59	82	64	81	59	82	62	85	48	77	59	82	62	82	61	83	55	87	54
28....	79	62	78	60	81	60	76	58	89	57	83	63	85	61	83	57	88	51	80	65	87	61	83	58	86	54	88	52
29....	93	62	88	59	90	60	88	59	92	58	92	68	86	60	92	60	94	52	89	62	92	65	91	60	89	57	96	54
30....	82	68	86	66	80	65	82	67	86	59	84	72	81	62	83	68	89	63	83	67	86	68	85	68	77	65	82	65
31....	90	65	90	61	91	61	91	62	93	63	88	68	87	63	89	61	92	52	86	65	90	66	90	66	91	59	92	59
Mns..	90.1	66.3	88.6	63.5	89.1	63.5	86.4	61.5	92.4	64.1	88.1	70.3	89.1*	64.2*	89.1	66.0	89.6	59.6	88.6	66.5	89.6	67.8	89.3	65.7	88.1	62.2	90.8	61.6

* a, b, c, etc., indicate respectively, 1, 2, 3, etc., days missing from the record.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost occurs.

CLIMATOLOGICAL DATA FOR JULY, 1911.

DISTRICT No. 2, SOUTH ATLANTIC AND EAST GULF STATES.

CHARLES F. VON HERRMANN, District Editor.

GENERAL SUMMARY.

A marked regression of temperature in midsummer in the South Atlantic and east Gulf States is unusual, and it must be considered rather remarkable that the average temperature of the district for July was nearly a degree lower than for June. The normal rise in temperature from June to July took place only in Virginia and North Carolina; in the remaining States of the district July, 1911, ranged from 1° to nearly 3° cooler than June. The Gulf States especially experienced quite moderate temperatures for the midsummer season; after the first few very warm days of July the day temperatures were not excessively high and the nights were cool and pleasant, resulting in deficiencies in monthly mean temperatures at nearly all stations in Georgia, Florida, Alabama, and Mississippi. In Mississippi and Alabama the State average temperatures were as low as ever before experienced in July, and in Georgia new minimum records were established at many stations. In Virginia and the Carolinas, on the other hand, the intense heat that characterized the preceding month continued almost unabated to the middle of July, culminating in maximum temperatures well above 100° on the 11th. But even in these States a period of decidedly cooler weather followed, and in all portions of the district the lowest temperatures for the month occurred during the last week.

The precipitation for the month was very irregularly distributed, and despite the frequency of rains drought continued to prevail in many portions of the Carolinas and Virginia, causing for a few days the complete exhaustion of the water supply at a few cities in western North Carolina. In Georgia the rainfall was normal, while in the western portion of the district a moderate excess in precipitation occurred. In all portions of the district the month was characterized by the frequency of light local showers entirely convectional in character. Except in Florida, where showers fell on every day of the month, a general period of fair weather prevailed from about the 26th to 30th. The total rainfall was less than 1 inch at only 7 stations, and exceeded 10 inches at 10 out of 357 stations reporting. Thunderstorms were numerous, but with one or two exceptions were unusually mild in character.

The atmospheric pressure ranged during most of the month between 30 and 30.2 inches, rarely falling below normal, and no well-defined barometric depression was observed in the district during the month. The lowest pressure for the district was 29.76 inches at Lynchburg and Norfolk, Va., on the morning of the 24th, and the highest was 30.28 inches on the 9th at Hatteras and Wilmington, N. C., and at Columbia, S. C.; giving a range of only 0.52 inch.

Aside from the damage by drought to crops in portions of Virginia and the Carolinas, the month as a whole was

favorable for agricultural interests. The amount of sunshine was much below the normal in the western portion of the district, elsewhere it was about normal. Vegetation in the Gulf States recovered to a large extent from the effects of heat and drought earlier in the season.

TEMPERATURE.

The temperature during July as revealed by the State averages was generally below normal, except in North Carolina and Virginia, where a moderate excess was recorded. The State means, however, do not properly indicate the march of temperature during the month, the deficiencies being brought about by the period of decidedly cooler weather during the last half of the month, while the earlier portion was intensely warm, especially in the northern portion of the district. The region of greatest deficiency in monthly mean temperatures comprises central Georgia and the northern portion of the Alabama and Mississippi areas, where at some stations the negative departures exceeded 3°.

Following are the most important details with reference to temperature for the separate States. In Virginia from the 2d to 13th, inclusive, a large number of stations reported daily maximum temperatures of 90° or above, culminating in 102° at Collaville on the 11th, which was generally the warmest day of the month. Fortunately the night temperatures were not correspondingly high and consequently prostrations were few in Virginia. During the latter part of the month there were several other days of excessive heat, and at several places the greatest number of days with the temperature above 90° on record occurred. In North Carolina also the weather was unusually warm during the first 10 days with the highest temperatures in the west on the 3d and in the central-eastern portion of the State on the 11th, the maximum reaching 104°. In South Carolina high temperatures continued until the 12th. In the remaining portions of the district the period of greatest heat terminated about the 4th, except in Florida where moderately high temperatures were registered on several dates throughout the month.

During the latter portion of July the temperature was decidedly lower especially from the 26th to 28th, resulting in deficiencies in the State means, which averaged about 2° for Georgia, Alabama, and Mississippi. In Mississippi the weather was free from the excessive heat common to July, the average maximum temperature being the lowest on record for the month in over 20 years; a monthly mean as low as that for the current month occurred only in July, 1904. In Alabama also the month was unusually cool. At Birmingham it was the coolest July since the establishment of the station in 1893, and at Montgomery the month was as cool as any July in the past 39 years. The minimum temperatures during the period from the 26th

to 28th were abnormally low. At Lenoir, N. C., the minimum, 46° on the 26th, was 5° lower than the previous July minimum for that station. The lowest at Mineral Bluff, Ga., 46° on the 26th, equals the previous lowest record for the State of Georgia made at Diamond in July, 1897.

The mean temperature for the entire district was 78.8° and the departure -0.8°. The monthly mean for June was 79.7°. The highest monthly mean at individual stations was 82.8° at Heath Springs, S. C., and Eustis, Fla. The highest monthly means in North Carolina and Virginia exceeded those in Georgia, Alabama, and Mississippi—a rare occurrence. The lowest monthly means were 68.1° at Hot Springs, Va., and 68.3° at Rock House, N. C. The highest temperature for the district was 107° at Valdosta, Ga., on the 1st, followed by 104° at Weldon, N. C., on the 11th, and the lowest was 43° at Hot Springs, Va., on the 26th.

PRECIPITATION.

With reference to the important element of precipitation the most salient facts are the unusual frequency of light local rains, even in the regions suffering from drought, and the extreme irregularity in the distribution of rainfall. In Florida showers fell at some point on every day of the month, while even in Virginia there were only five generally fair days. As a rule over most of the district but one distinct period of fair weather prevailed, namely, from the 26th or 27th to the 29th or 30th of the month. The number of days with appreciable rainfall was above the normal in all the Gulf States and in South Carolina, and but slightly below in the northern portion of the district, ranging from 14 days in the Mississippi area to 7 days in Virginia.

The State averages were slightly above normal in Alabama and Mississippi, and in the latter State during the first week rains were excessive and damaging in several southern counties, and heavy rains occurred locally at intervals throughout the month. In Georgia the rainfall was normal, but the distribution was so irregular that deficiencies of nearly 4 inches occurred along the coast, and excesses of from 3 to 4 inches in the northwestern counties. In the remaining States of the district the rainfall was decidedly below normal, the deficiency exceeding 2 inches in North Carolina and Virginia. The State mean for North Carolina, 3.10 inches (deficiency 2.77 inches), is lower than any previous July average in the past 30 years except in 1902, when it was 2.74 inches. In Virginia the month was one of uneven and scanty rainfall, resulting without doubt in great damage to crops in many sections. At Richmond the total rainfall was the smallest for July in the past 40 years.

The regions of least precipitation are found over the headwaters of the Roanoke River in Virginia, in eastern and south-central North Carolina, and in very limited areas in South Carolina and Florida, where the monthly totals were under 2 inches. The maximum rainfall of from 6 to 10 or more inches occurred over considerable areas in the lower valleys of the Pearl and Pascagoula Rivers, in southwestern Alabama, and the watersheds of the upper Tombigbee and Black Warrior, in the Chat-tahoochee Basin and in widely separated regions of the Florida Peninsula.

The average rainfall for the district was 4.84 inches and the departure -0.88 inch. On the average 2.50 inches more rain was received during July than during June. The largest monthly rainfall was 13.26 inches at

Merrill, Miss., closely followed by 12.20 inches at Live Oak, Fla. Totals exceeding 10 inches also occurred at Pearlinton and Waynesboro, Miss., at Daphne, Ala., and at St. Leo, Bartow, Fenholloway Homestead, and Inverness, Fla. The smallest total was 0.57 inch at Richmond, Va. The maximum fall in 24 hours was 4.85 inches on the 14th at Pinopolis, S. C. Heavy rains fell at a few places in each State in the district.

RIVER CONDITIONS.

In the Gulf States the frequent and abundant rainfall resulted in a moderate increase in the flow of the rivers, culminating in the highest stage about the 15th to 25th, but flood stages were not attained at any point. The most pronounced rise took place in the Pascagoula River at Merrill, Miss., where a stage of 18 feet was reached on the 22d. (Flood stage, 20 feet.) A moderate rise also took place in the Oconee River, a stage of 11.7 feet being attained at Milledgeville, Ga., on the 15th. (Flood stage, 25 feet.)

In all other portions of the district the rivers continued exceptionally low and the ranges between the highest and lowest stages were very small. At 30 river stations out of 36 located in Georgia, the Carolinas, and Virginia the mean stages for July, 1911, were much below the normal for the month. The average stage of the Cape Fear River at Fayetteville, N. C., was 2.5 feet, the lowest for July with one exception in 17 years. The mean stage of the Pedee River at Smiths Mills, S. C., was -0.4 foot, the lowest in 16 years, and of the Black River at Kingstree, S. C., -2.0 feet, the lowest in 18 years. The Waccamaw River at Conway, S. C., reached the lowest point on record, -0.1 foot on the 26th. If during autumn, usually the driest season of the year, only normal rainfall is received the rivers may be expected to attain even lower stages during the remainder of the year.

MISCELLANEOUS PHENOMENA.

The average number of clear days in the district ranged from 8 in Florida, Alabama, and Mississippi to 15 in North Carolina and 17 in Virginia; the number of cloudy days averaged 10 in the first three States named and 4 in the northern portion of the district. The prevailing winds were from the southwest in all sections, with a very light movement. The average hourly velocity exceeded 10 miles an hour only at Hatteras, N. C., and no gales of 40 miles an hour were reported.

An unusually brilliant and large meteor was observed on July 4 at about 8.45 a. m. in Florida, which moved rapidly from west to east over the towns of Gainesville, Fairbanks, Waldo, and Melrose, with a roaring sound. Small pieces thrown off by the meteor scintillated like stars, and the meteor exploded a short distance north of Melrose.

A fine series of about five waterspouts was observed about 3 miles south of Morehead City, N. C., on the afternoon of July 26.

Thunderstorms were frequent during the first half of the month, the largest number occurring on the 11th, 12th, and 13th. The following severe wind and hail storms are worthy of note:

Alabama.—A destructive windstorm on the 2d south of Antioch Church in the southeastern part of Pike County, Ala., devastated an area of about 2 square miles. Homes, barns, and forest trees were blown down, but no lives were lost.

Georgia.—On Monday afternoon, July 3, a most destructive hail and wind storm swept across the northern end of Wilkes and Lincoln Counties, Ga. The path of the storm was about 4 miles wide and 8 to 10 miles long; the hailstones were very large. Crops on more than 10,000 acres were partially destroyed; hogs and poultry were killed, and trees were stripped of their foliage. Three negro women were reported to have been killed by lightning.

North Carolina.—A severe hailstorm occurred in the vicinity of Apex, Wake County, N. C., on the afternoon of July 18, which is said to have destroyed over 100 acres of tobacco.

Florida.—A severe windstorm occurred at Robinson Point, Fla., at 5.30 p. m. July 8, 1911. The direction of the wind was from the east. A downpour of hail and rain followed the storm; some of the hailstones were one-fourth inch in diameter. The débris lay due west of the center of the line of greatest destruction, the width of the path at that point being 200 feet. No persons were killed, but the sawmill of the Robinson Point Lumber Co. was damaged to the extent of about \$500. The roofs of the planing mill and drying sheds were blown off and piles of lumber on the wharf were scattered in every direction. The wind for a few moments was terrific, carrying large pieces of timber hundreds of yards away.

THE DROUGHT OF 1911 IN NORTH CAROLINA.

By LEE A. DENSON, Section Director, Raleigh, N. C.

The precipitation in North Carolina during the period from January 1 to July 31, 1911, has been remarkably small. The average amounts recorded at 75 stations is

20.32 inches, or 10.30 inches below the normal, and 4.18 inches less than any previous record for the period. Prior to this year the smallest average was 24.50 inches in 1902.

The State averages for 1911 were as follows: January, 2.92 inches; February, 2.09; March, 3.69; April, 4.14; May, 1.27; June, 2.78, and July, 3.43—all below the normal except April, which, however, was also decidedly below normal in the eastern district.

The accompanying table gives the average precipitation for North Carolina from January 1 to July 31 for the past 25 years:

Year.	Amount.	Year.	Amount.	Year.	Amount.
1887.....	28.23	1896.....	30.84	1905.....	32.61
1888.....	30.14	1897.....	30.76	1906.....	36.08
1889.....	33.76	1898.....	25.46	1907.....	27.54
1890.....	23.57	1899.....	36.46	1908.....	34.08
1891.....	35.78	1900.....	31.14	1909.....	32.90
1892.....	32.96	1901.....	35.29	1910.....	29.80
1893.....	29.66	1902.....	24.50	1911.....	20.32
1894.....	25.22	1903.....	34.59		
1895.....	35.06	1904.....	25.69	Mean.....	30.62

As a result of the prolonged drought the soil is unusually dry to a considerable depth, streams are very low, many wells have failed entirely, and in several cities the water supply is low. The most dramatic event connected with the drought was the complete exhaustion of the water supply of the city of Charlotte. For several days the water was entirely cut off, and supplies for drinking and cooking purposes had to be hauled to the city in tank cars. The city was patrolled most carefully to guard against fire. However, the drought has not had a disastrous effect on vegetation, since light rains have been well distributed.

TABLE 1.—Climatological data for July, 1911. District No. 2, South Atlantic and east Gulf States.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Virginia.																			
Arvonla.	Buckingham.	350	7	78.2	+ 0.8	100	7	55	23	38	1.06	- 2.71	0.67	0	6	10	19	2	Rev. Plummer F. Jones.
Ashland.	Hanover.	221	20	78.0	0.0	98	7	57	23	30	1.41	- 3.61	0.66	0	6	2	29	0	E. L. C. Scott.
Bedford City.	Bedford.	947	1	77.8		99	7	58	28	33	2.74		1.90	0	6	16	15	0	C. Hayes Taylor.
Buchanan.	Botetourt.	820	7								3.47	- 1.37	1.41	0	8				D. D. Booze.
Callville.	Brunswick.	250	17	79.2	+ 2.1	102	11	54	26	35	1.85	- 3.70	0.77	0	5	14	17	0	F. M. Gage.
Cape Henry.	Princess Anne.	20	37	78.0	+ 0.5	99	10	64	29	21	1.90	- 3.95	0.50	0	9	23	4	4	U. S. Weather Bureau.
Catawba.	Roanoke.	1,760	1	74.6		91	3	51	27	33	6.63		2.20	0	11	23	8	0	State Sanitarium.
Charlottesville.	Albemarle.	800	22	79.4	+ 3.3	101	7	59	26	30	2.96	- 2.52	1.50	0	5	17	11	3	Leander McCormick Obsy.
Clarksville.	Mecklenburg.	17									1.78	- 2.67	0.70	0	6				J. A. Ligon.
Columbia.	Fluvanna.	246	13	76.0	- 0.4	96	7	54	19	35	1.22	- 2.87	0.46	0	5	16	11	4	Chesapeake & Ohio Ry.
Coveseville.	Albemarle.	800	1	76.2		96	7	52	31	38	1.92		1.00	0	3				F. H. Cole.
Danville.	Pittsylvania.	413	11								3.14	- 0.78	1.55	0	6				C. G. Watkins.
Diamond Springs.	Princess Anne.	20	1	79.6		100	11	57	26	32	3.44		1.30	0	8	16	10	5	Va. Truck Expt. Sta.
Hampton.	Elizabeth City.	5	28	80.0	+ 1.5	97	11	64	24	25	2.44	- 2.71	0.99	0	7	22	1	8	Normal & Agr. Inst.
Hot Springs.	Bath.	2,195	19	68.1	- 1.3	98	6	43	26	38	2.73	- 1.12	0.57	0	14	20	8	3	F. M. Terry.
Ivor.	Southampton.	87	2	78.2		100	10	51	24	34	2.49		0.75	0	6				N. & W. Ry. Expt. Farm.
Lassiter.	Goochland.	100	1								3.25		2.50	0	2	29	2	0	T. J. Davis.
Lexington.	Rockbridge.	1,060	34	74.8	+ 0.3	99	2	46	29	30	2.33	- 1.65	0.48	0	11	22	5	4	Virginia Military Institute.
Lynchburg.	Campbell.	685	40	77.4	+ 0.1	97	3	56	25	30	5.53	+ 1.50	4.17	0	7	14	17	0	U. S. Weather Bureau.
New Castle.	Craig.	1,300	2								5.07		1.79	0	10	16	2	13	Miss J. L. Martin.
Norfolk.	Norfolk.	91	41	79.2	+ 0.8	97	11	64	26	24	5.10	- 0.70	1.50	0	12	13	15	3	U. S. Weather Bureau.
Petersburg.	Dinwiddie.	60	24	80.0	+ 2.4	101	10	59	23	32	1.57	- 3.32	0.65	0	5	25	3	3	Central State Hospital.
Randolph.	Charlotte.	334	7								2.34		0.80	0	5				H. G. Holt.
Richmond.	Henrico.	144	32	79.6	+ 0.4	100	7	60	38	30	0.57	- 3.85	0.39	0	3	7	19	5	U. S. Weather Bureau.
Rocky Mount.	Franklin.	1,150	17	76.2	+ 0.4	100	3	51	28	38	1.85	- 4.27	0.64	0	4				G. W. B. Hale.
Saxe.	Charlotte.	350	8	81.4		100	3	57	26	34	2.61		1.18	0	6	18	3	10	State Experiment Farm.
Spottsville (near).	Surry.	15	23	78.7	+ 1.1	100	10	58	27	32	1.83	- 4.41	0.98	0	5	17	8	6	B. W. Jones.
Williamsburg.	James City.	70	20	78.6	+ 1.8	99	11	56	26	30	5.60	+ 0.45	2.25	0	6	25	6	0	Eastern State Hospital.
North Carolina.																			
Albemarle.	Stanly.			78.9		100	11	55	29	38	1.31		0.64	0	9	17	14	0	M. J. Harris.
Beaufort.	Carteret.	10	10	81.0	+ 1.2	90	8	70	11	19	1.91	- 3.38	0.52	0	8	22	5	4	H. D. Aller.
Belhaven.	Beaufort.	4	2	80.2		101	11	59	11	32	3.15		1.40	0	5	20	8	3	W. S. Hopkins.
Brewers.	Wilkes.	1,950	14	75.0	- 0.6	97	3	50	27	38	2.46	- 3.14	1.00	0	8	9	22	0	W. L. Brewer.
Caroleen.	Rutherford.	806	11	79.2	+ 0.9	101	3	57	25	38	2.73	- 1.96	1.13	0	7	11	20	0	S. B. Tanner.
Chalybeate Springs.	Harnett.	500	5	77.6		98	11	55	27	33	3.73		0.85	0	9	20	9	2	J. A. Smith.
Charlotte.	Mecklenburg.	773	35	78.8	+ 0.1	95	3	62	26	26	2.86	- 2.63	0.82	0	11	8	18	5	U. S. Weather Bureau.
Chimney Rock.	Rutherford.	1,150	1	75.2		94	3	53	27	33	3.67		0.92	0	12	17	14	0	J. M. Flack.
Durham (near).	Durham.	406	2								1.89		1.38	0	6				J. H. Michie.
Eagle town.	Northampton.	66	6	79.4		100	11	58	26	30	6.95		3.31	0	6	21	9	1	T. J. Elliott.
Edenton.	Chowan.	30	17	79.8	+ 0.2	95	11	61	1	26	2.90	- 4.22	1.00	0	4	14	10	7	E. R. Conger.
Elizabeth town.	Bladen.	60									0.70		0.32	0	3				J. W. Hall, Jr.
Enfield (near).	Halifax.	99									3.93		1.72	0	9				T. S. Inboden.
Fayetteville.	Cumberland.	170	24	80.0	+ 0.9	98	11	61	27	33	2.59	- 4.59	0.87	0	10	19	7	5	Frank Glover.
Goldsboro.	Wayne.	102	41	78.6	- 1.2	98	11	61	26	27	2.82	- 3.69	1.21	0	7				Mrs. N. B. Taylor.
Graham.	Alamance.	656	9								2.21		0.69	0	6				Dr. W. R. Goley.
Greensboro.	Guilford.	843	30	76.7	- 1.4	99	7	56	27	34	2.22	- 2.89	1.04	0	8				A. H. Horry.
Greenville.	Pitt.	75	18								4.03	- 2.79	1.45	0	12				R. M. Hearne.
Hatteras.	Dare.	11	37	79.0	+ 0.4	88	11	55	1	16	1.01	- 5.10	0.38	0	8	20	8	3	U. S. Weather Bureau.
Henderson.	Vance.	508	18	78.2	+ 0.1	97	11	56	26	26	8.11	+ 2.32	4.02	0	8	15	15	1	Enoch Powell.
Kings Mountain (near).	Gaston.	952		80.3		103	22	54	26	37	2.00		1.53	0	6	3	16	12	Rev. C. J. Strang.
Kinston.	Lenoir.	46	13	81.4	+ 0.6	101	11	63	26	32	2.45	- 4.24	0.49	0	10	19	8	4	H. C. V. Peebles.
Lenoir.	Caldwell.	1,186	38	75.6	+ 0.6	98	3	49	26	40	4.11	- 0.84	1.25	0	10	30	1	0	G. M. Goforth.
Lincolnton.	Lincoln.	994	6	76.4		95	3	54	26	37	1.35		0.38	0	11	0	31	0	S. P. Houser.
Louisburg.	Franklin.	375	20	78.4	+ 0.3	98	11	54	26	29	5.84	+ 0.47	2.00	0	6	17	14	0	T. B. Wilder.
Lumberton.	Robeson.	102	28	80.0	- 0.3	98	11	54	26	33	3.75	- 2.19	1.42	0	11				B. M. Davis.
Manteo.	Dare.	12	6	79.0		97	11	54	26	33	1.92		0.62	0	8	17	10	4	U. S. Weather Bureau.
Marion.	McDowell.	1,425	19	74.6	- 1.0	98	3	54	26	33	4.19	- 1.21	1.16	0	12	12	17	2	Sergt. Thos. McGuire.
Middle town.	Hyde.	4		78.5		95	11	54	26	33	1.92		1.10	0	7	18	11	2	J. S. Mann.
Moncure.	Chatham.	145	17	78.2	- 0.6	98	11	54	26	33	3.81	- 1.13	1.03	0	8	12	3	16	B. J. Utley.
Monroe.	Union.	586	17	78.7	+ 0.7	99	11	54	26	40	1.96	- 3.27	0.54	0	8	17	10	4	T. A. Ashcraft.
Morganton.	Burke.	1,135	24	76.2	+ 0.2	98	3	54	26	40	2.68	- 2.46	1.35	0	11	26	4	1	H. D. Judd.
Mount Airy.	Surry.	1,048	23	76.4	+ 1.2	98	3	54	26	40	2.85	- 2.93	1.10	0	7	25	6	0	Prof. A. H. Merritt.
Mount Holly.	Gaston.	616	14								2.37	- 3.99	0.86	0	9				J. W. Holland.
Nashville.	Nash.	190	7	78.8		99	11	54	26	36	5.08		2.10	0	8	8	16	7	J. B. Boddie.
Newbern.	Craven.	12	29	79.0	0.0	97	11	54	26	39	4.29	- 3.35	1.05	0	12				J. B. Hill.
Pinehurst.	Moore.	650	7	81.4		102	11	54	26	37	0.85		0.30	0	5	17	9	5	General Office.
Raleigh.	Wake.	390	40	78.8	+ 0.3	98	11	54	26	27	2.95	- 3.16	0.85	0	9	9	16	6	U. S. Weather Bureau.
Ramseur.	Randolph.	442	4	78.1		100	11	54	26	43	0.66		0.21	0	6	19	12	0	A. H. York.
Randleman.	do.	810	6								1.05		0.67	0	4				J. R. Walton.
Reidsville.	Rockingham.	828	12	80.0	+ 3.8	102	11	54	26	34	1.80	- 3.44	1.00	0	7	14	12	5	E. M. Redd.
Rock House.	Macon.	3,100	19	68.3	- 3.2	84	3	54	26	22	6.17	- 2.20	2.14	0	14	11	18	2	B. C. Hawkins.
Rocky Mount.	Nash.	105									3.98		1.79	0	7				G. P. Womble.
Salem.	Forsyth.	1,000	16	76.9	- 0.7	97	11	54	26	32	2.43	- 3.18	1.10	0	5				Rev. H. E. Rondthaler.
Salisbury.	Rowan.	760	27	79.4	+ 0.4	98	7	54	26	32	2.47	- 2.40	1.20	0	7	14	6	11	Miss Thelma Wilkinson.
Saxon.	Stokes.	900	19	75.8	- 0.7	98	11	54	26	37	2.01	- 2.30	1.00	0	6	15	11	5	R. P. McAnally.
Scotland Neck.	Halifax.	80	7	76.9		96	11	54	26	27	2.94		1.33	0	8	7	12	12	J. Y. Savage.
Selma.	Johnston.	225	21	80.1	+ 0.4	103	11	54	26	37	0.95	- 6.10	0.65	0	2				Dr. R. J. Noble.
Settle.	Iredell.	700	15	75.9	- 1.4	97	3	54	26	34	2.84	- 3.05	1.49	0	7	12	14	5	C. H. Smith.
Sloan.	Duplin.	50	18	79.2	+ 0.4	100	11	54	26	32									

TABLE 1.—Climatological data for July, 1911. District No. 2—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
South Carolina.																				
Aiken.	Aiken.	565	27	80.4	- 0.8	99	3	63	16†	28	1.80	- 3.31	0.45	0	6	22	6	3	w.	Dr. H. T. Hall.
Allendale.	Barnwell.	186	23	79.4	- 1.6	100	12	57	27	33	6.28	+ 0.71	1.59	0	12	8	17	6	w.	A. R. Hiers.
Anderson.	Anderson.	764	10	78.8	- 0.1	98	1	57	26†	30	4.96	+ 0.07	1.20	0	12	15	0	16	w.	H. H. Russell.
Batesburg.	Lexington.	656	23	78.6	- 1.3	96	22	59	26	30	3.41	- 1.91	1.59	0	9	17	4	10	n.	E. J. Hite.
Beaufort.	Beaufort.	20	25	78.6	- 3.0	89	24	65	27†	20	6.58	+ 0.78	2.00	0	6	8	23	0	sw.	Miss Lillian H. Rice.
Blackville.	Barnwell.	296	22	82.0	+ 0.3	100	5	60	25†	35	0.91	- 4.42	0.20	0	7	13	12	6	sw.	Miss M. E. Lange.
Blairs.	Fairfield.	293	6								3.05		1.17	0	7	13	9	9	a.	John R. Ragsdale.
Bowman.	Orangeburg.	160	10	79.2	- 1.3	98	2	54	27	37	2.54	- 2.13	0.88	0	13	14	15	2	w.	B. O. Evans.
Calhoun Falls.	Abbeville.	508	18								4.49	- 0.96	1.40	0	7	15	8	8	sw.	L. M. Parker.
Camden.	Kershaw.	222	45	80.5		97	23	55	29	39	3.60	- 1.40	0.98	0	9	21	2	8	sw.	W. C. Brown.
Catawba.	York.	562	6								2.51		0.66	0	10	16	7	8	a.	Jas. C. Faris.
Chappells.	Newberry.	402	6								1.80		0.70	0	6	18	0	13	sw.	W. R. Zimmerman.
Charleston.	Charleston.	48	41	80.6	- 0.7	94	21	65	26	21	2.23	- 5.03	0.90	0	11	7	20	4	se.	U. S. Weather Bureau.
Cheraw.	Chesterfield.	144	23	78.8	- 1.1	96	11†	58	26†	30	0.83	- 5.17	0.21	0	7	21	5	5	e.	J. H. Powe.
Clemson College.	Oconee.	850	20	76.3	- 2.5	94	1	56	26	26	5.63	+ 0.30	1.82	0	9	19	9	3	s.	Prof. John N. Hook.
Columbia.	Richland.	351	25	79.8	- 1.3	95	23	60	26	28	2.30	- 3.76	0.72	0	14	2	14	15	sw.	U. S. Weather Bureau.
Conway.	Horry.	25	19	80.2	+ 0.4	98	11	63	26†	30	5.48	- 1.28	1.34	0	8	12	5	14	sw.	P. C. Quattlebaum.
Darlington.	Darlington.	175	16	78.8		97	11†	57	26†	37	2.30	- 2.76	0.55	0	9					D. C. McCall.
Dillon.	Dillon.	100	7	79.8	- 0.8	98	11	58	27	33	4.07	- 1.69	1.71	0	12					A. E. Rowell.
Effingham.	Florence.	106	19								4.92	+ 1.05	0.98	0	9	23	0	8	w.	H. B. McCall.
Ferguson.	Berkeley.	51	3	81.6	+ 2.5	98	11	64	26	27	5.90	- 0.26	2.50	0	13	15	9	7		Dr. Jas. R. Des Portess.
Florence.	Florence.	136	23	82.2	+ 0.8	102	11†	61	27	34	1.55	- 4.05	0.65	0	9	18	3	10	sw.	H. K. Gilbert.
Georgetown.	Georgetown.	12	18	80.6	+ 0.1	97	11	64	18†	27	3.71	- 3.68	1.50	0	5	6	14	11		A. P. Hazard.
Greenville.	Greenville.	989	19	76.0	- 0.0	94	3	53	26	32	6.56	+ 1.18	2.39	0	9	21	5	5	e.	Spartan Goodlette.
Greenwood.	Greenwood.	671	23	79.4	- 0.6	96	1†	57	26	31	5.45	+ 0.82	1.38	0	9	25	0	6	w.	M. M. Calhoun.
Heath Springs.	Lancaster.	568	10	82.8		100	7†	63	14	30	1.04		0.39	0	8	23	7	1	sw.	J. A. Weaner.
Jacksonboro.	Colleton.	13	3	78.6		92	11†	59	27	27	6.95		2.39	0	13	4	17	10	w.	W. E. Haskell, jr.
Kingstree.	Williamsburg.	54	23	80.4	- 0.2	99	11†	58	26†	34	4.11	- 1.72	2.20	0	5	18	5	8		A. O. Matthews.
Liberty.	Pickens.	900	17	78.4	- 0.7	102	3	56	26†	33	5.66	+ 0.26	2.25	0	11	12	17	2	sw.	John T. Boggs.
Little Mountain.	Newberry.	711	18	80.4	- 0.2	98	2	59	26	31	2.96	- 1.94	0.65	0	12	18	3	10	w.	J. M. Sease, M. D.
Meriwether.	Edgefield.	2	7	79.6		98	1†	59	27	31	3.84		1.06	0	7	7	5	15		Wm. S. Middleton.
Newberry.	Newberry.	502	7	80.3	0.0	98	11†	56	26	32	2.27	- 3.10	1.32	0	14	5	22	4	w.	W. G. Peterson.
Pelzer.	Anderson.	873	6								2.88		0.70	0	9	22	5	4	w.	John M. Ward.
Pinopolis.	Berkeley.	55	18								7.10	+ 0.88	4.85	0	12					Miss E. P. Ravanel.
St. George.	Dorchester.	109	23	81.9	+ 1.1	97	11	61	26	28	4.48	- 1.50	0.80	0	13	26	2	3		G. T. Lewis.
St. Matthews.	Calhoun.	209	23	80.0	0.0	94	11†	65	26†	24	2.25	- 3.52	0.78	0	9	16	0	15		J. S. Wannamaker.
Saluda.	Saluda.	530	9	79.0		99	6	53	27	39	4.18		1.25	0	11	21	8	2	w.	Mrs. F. V. J. Maxwell.
Santuc.	Union.	512	16	79.9	+ 0.7	100	6	60	27†	34	3.71	- 1.28	1.29	0	10	7	17	7	sw.	E. W. Jeter.
Smith Mills.	Williamsburg.	62	16								3.67	- 2.75	1.51	0	9	22	2	7	e.	W. G. Walker.
Society Hill.	Darlington.	192	20	78.8	- 0.6	94	6†	61	26†	24	2.45	- 3.73	0.55	0	11	18	7	6	sw.	Maj. J. J. Lucas.
Spartanburg.	Spartanburg.	875	20	79.0	- 0.3	99	3	55	26	31	1.91	- 2.67	1.17	0	11	13	4	14		F. P. Robinson.
Summerville.	Dorchester.	75	14	79.6	- 0.1	95	31	59	27	33	3.54	- 3.10	1.02	0	16	4	27	0	sw.	Miss E. H. Gadsden.
Trenton.	Edgefield.	620	18	80.4	0.0	100	1	60	26	34	3.43	- 2.34	1.66	0	7	10	21	0	w.	C. A. Long.
Walterboro.	Colleton.	69	7	80.6		99	11†	57	27	46	7.36		3.00	0	13	11	10	10		J. A. Westerberg.
Winnsboro.	Fairfield.	545	21	79.4	+ 0.3	96	23	60	26	26	2.18	- 2.03	0.70	0	8	20	10	1	s.	J. W. Seigler.
Winthrop College.	York.	690	12	79.5	- 0.3	97	23	59	26	28	3.91	- 0.29	1.57	0	8	20	6	5	sw.	E. R. Rivers.
Yemassee.	Hampton.	23	16	78.9	- 2.5	95	3	58	28	34	5.18	- 1.68	1.55	0	12	22	2	7		J. G. Hutson.
Georgia.																				
Abbeville.	Wilcox.		8								7.91		1.85	0	15	6	14	11	w.	W. H. Calhoun.
Adairsville.	Bartow.	772	19	77.6†	- 1.0	98	3	54	26	31	4.50	- 0.65	1.88	0	8	14	13	1	sw.	Dr. J. P. Bowdoin.
Albany.	Dougherty.	230	25	80.6	- 2.3	98	1	60	27	29	4.25	- 1.43	0.70	0	19	15	4	12	sw.	George C. Brosnan.
Allapaha.	Berrien.	293	22			98	1				4.58	- 1.21	1.12	0	11	1	23	7	sw.	James T. Austin.
Americus.	Sumter.	362	28	78.4	- 3.9	98	1†	58	26†	29	3.02	- 2.12	1.10	0	8	15	1	14	s.	F. P. Harrold.
Athens.	Clarke.	694	34	77.9	- 0.4	97	1†	56	26	30	7.38	+ 2.51	2.03	0	10	15	7	9	se.	C. D. Cox.
Atlanta.	Fulton.	1,218	46	76.3	- 2.3	96	1	59	26	25	5.52	+ 1.28	1.70	0	15	4	8	19	sw.	U. S. Weather Bureau.
Augusta.	Richmond.	180	45	79.7	- 2.0	94	3	62	26	25	5.27	+ 0.49	2.38	0	13	3	18	10	sw.	Do.
Bainbridge.	Decatur.	110	19	80.2	- 1.5	100	1	60	28	34	5.78	- 0.70	2.12	0	16	17	2	12	ne.	Mrs. C. O. Wimberley.
Barnesville.	Pike.	875	2	78.7		98	1	60	26	38	4.26		1.05	0	11	8	20	3	sw.	Prof. T. O. Galloway.
Blakely.	Early.	300	20	81.4	- 0.4	103	1†	58	28	36	7.00	+ 0.30	2.18	0	13	5	20	6	sw.	Ralph M. Hobbs.
Butler.	Taylor.	650	10								8.31	+ 2.04	1.26	0	15	12	2	17	w.	Mrs. Mamie F. Wallace.
Camak.	Warren.	613	19	79.8	- 0.6	99	1†	58	27	39	6.10	+ 0.81	2.85	0	10	15	6	10	sw.	J. A. Chapman.
Canon.	Cherokee.	894	20								7.10	+ 2.45	1.79	0	10	15	6	10	nw.	G. W. Evans.
Carlton.	Madison.	357	12								6.12	+ 1.48	3.30	0	5	20	2	9	e.	M. C. Power.
Clayton.	Rabun.	2,100	17	72.4	- 2.0	93	2	50	26†	38	4.98	- 2.40	2.00	0	11	21	8	2	w.	A. J. Duncan.
Columbus.	Muscoe.	262	23	80.2	- 0.9	99	1	61	28	30	4.88	- 1.21	1.45	0	15	14	4	13	nw.	A. J. Land.
Covington.	Newton.	800	19								3.30	- 1.57	1.35	0	10	10	4	17	sw.	Mrs. Sarah E. Cruse.
Cuthbert.	Randolph.	446	11	78.0†	- 4.2	95	29	57	25	31	6.50		1.35	0	17	4†	24†	1†		Mrs. W. F. McMichael.
Dahlonega.	Lumpkin.	1,519	21	74.8	- 0.5	94	3	53	26	31	4.09	- 1.80	0.73	0	19	5	21	5	nw.	Prof. B. P. Gaillard.
Diamond.	Gilmer.	2,020	21	73.0	- 1.3	98	3	48	27	36	8.88	+ 2.33	4.53	0	13	8	15	8		R. A. Kimzey.
Dublin.	Laurens.	452	17								7.63	+ 2.01	4.12	0	11	19	0	12	w.	Mrs. M. E. Martin.
Eastman.	Dodge.	361	19	79.0	- 3.0	94	30	63	26†	28	3.76	- 2.25	1.09	0	14	5	6	20	w.	Miss Annie Bohannon.
Elberton.	Elbert.	710	20	78.7	- 0.7	98	7	58	26	30	4.78	- 0.56	1.40	0	10	16	15	0	w.	H. A. Roebuck.
Experiment.	Spalding.	946	11	78.8	- 0.3	101	1	62	26†	27	3.90	+ 0.35	0.65	0	9	3	19	9		Martin V. Calvin.
Fort Gaines.	Clay.	166	24	79.4	- 2.0	98	1	59	27†	35	7.50	+ 1.61								

TABLE 1.—Climatological data for July, 1911. District No. 2—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
Georgia—Continued.																					
Mineral Bluff	Fannin	292	6	72.8		95	1	46	26	33	5.02		1.41	0	15	8	22	1	n.	J. M. Clement.	
Montezuma	Macon	292	6	72.8		95	1	46	26	33	5.02		1.41	0	15	8	22	1	sw.	J. C. Collins.	
Monticello	Jasper	800	16	78.8	-1.3	101	1	56	27	31	5.34	+0.22	1.62	0	14	9	8	14		Miss Maude C. Penn.	
Morgan	Calhoun	337	18	78.8		95	1	56	26	30	5.34	+0.22	1.62	0	14	9	8	14		W. J. Ragan.	
Newnan	Coweta	959	22	76.6	-3.1	98	1	56	26	27	9.77	+4.68	1.90	0	15	20	0	11	ne.	Mrs. Ida J. Milner.	
Norcross	Gwinnett	1,078		78.8	-0.6	98	3	56	27	30	5.50		1.60	0	12	13	12	6		W. O. Medlock.	
Point Peter	Oglethorpe	1,000	22	78.8	-1.1	99	1	55	27	32	6.23	-0.47	1.21	0	11	6	24	1		C. M. Witcher.	
Poulan	Worth	173	20	77.6b	-3.2	98	1	58	26	30	6.36	+1.99	1.10	0	13	19	10	2		Dr. J. F. Wilson.	
Putnam	Marion	173	25	78.8	-2.7	93	1	60	27	30	5.19	-2.67	1.17	0	10	20	0	11	sw.	Mrs. J. M. Collum.	
Quitman	Brooks	173	25	78.8	-2.7	93	1	60	27	30	5.19	-2.67	1.17	0	10	20	0	11	sw.	A. B. Jones.	
Ramhurst	Murray	1,363	18	74.2	-2.9	92	4	52	27	27	4.73	-0.42	0.70	0	17	7	19	5	sw.	D. E. Humphreys.	
Resaca	Gordon	657	17	77.8		98	3	55	27	31	6.88	+3.47	0.64	0.78	0	8	23	5	se.	D. A. Norton.	
Rome	Floyd	576	4	79.3	-2.1	98	3	55	27	31	6.88	+3.47	0.64	0.78	0	12	13	7	11	w.	W. M. Towers.
St. George	Charlton	20	19	80.0b	-1.0	98	1	58	27	29	4.10		0.89	0	16	16	13	2	nw.	A. N. Lund.	
St. Marys	Camden	65	61	79.3	-2.4	92	11	65	26	22	4.36	-1.74	1.81	0	13	3b	20b	6b		David C. Sterling.	
Savannah	Chatham	253	11	81.0	-0.6	99	30†	61	26†	35	2.98	-2.90	0.70	0	10	7	24	0	sw.	U. S. Weather Bureau.	
Statesboro	Bulloch	750	18	79.2	-0.2	101	1	56	26	36	4.04	-1.38	0.86	0	15	7	1	23	w.	W. C. Cromley.	
Talbot	Talbot	1,150	12	76.4	-1.8	99	3	54	27	31	9.09	+3.78	1.90	0	14	12	7	12	sw.	Dr. E. L. Bardwell.	
Talpoosa	Haralson	273	29	78.9	-2.4	97	1	60	27	30	7.61	+0.86	1.90	0	19	6	12	13	sw.	Elmer C. Bishop.	
Thomasville	Thomas	370	29	79.0a		98	30	59	26	32	3.13		0.90	0	8				sw.	U. S. Weather Bureau.	
Tifton	Tift	1,050	26	76.6	-1.2	96	3	55	26	26	7.17	+1.21	2.05	0	11	23	0	8	w.	K. C. Moore.	
Toccoa	Stephens	210	6	81.4		107	1	59	27	38	7.73		1.20	0	10	16	0	15	e.	Mrs. Alice Starke.	
Valdosta	Lowndes	10	14	79.2	-1.2	93	12†	56	28	32	2.53	-4.33	0.57	0	11	18	13	0	sw.	Miss Annie Twitty.	
Valonia	McIntosh	630	23	78.8	-1.4	96	7	59	26	28	7.95	+2.76	2.10	0	10	10	13	8	sw.	J. M. Atwood.	
Washington	Wilkes	131	22	80.3	-1.9	97	1	58	26	32	5.39	-0.60	1.08	0	20	23	1	7	sw.	Miss Ella B. Smith.	
Waycross	Ware	86	20	78.4	-3.4	97	1	55	26	35	6.11	+0.60	2.15	0	10	15	6	10	w.	Thomas Sasser.	
Waynesboro	Burke	620	22	78.2	-3.3	98	1	58	26†	34	6.12	+1.48	2.16	0	17	11	4	16	w.	Mrs. H. W. Blount.	
West Point	Troup	641	10								7.03	+3.55	1.31	0	15	13	9	9		E. N. Dunn.	
Woodbury	Meriwether																			E. T. Riggins.	
Florida.																					
Apalachicola	Franklin	24	7	80.6		92	13	66	27	19	6.47		1.60	0	10	11	15	5	s.	G. H. Whiteside.	
Arcadia	De Soto	61	10	80.8	-1.0	97	1	65	29	29	5.20	-3.79	1.14	0	20	2	28	1	e.	C. S. Bushnell.	
Archer	Alachua	92	26	80.4	-1.3	93	1†	64	28	29	5.69	-3.20	2.00	0	11					R. B. Hodgson.	
Avon Park	DeSoto	150	13	81.0	-0.6	97	1	67	5	26	8.01	-0.26	1.49	0	21	4	17	10		O. R. Thacher.	
Bartow	Polk	115	23	80.8	-0.8	98	22	65	5	27	10.76	+3.48	1.86	0	21	1	8	22	se.	William Hood.	
Blountstown	Calhoun		2	79.2		93	1	60	27†	29	7.50		1.20	0	14				s.	C. L. Hobbs.	
Bradentown	Manatee	10	27	79.4	-1.6	90	16†	67	27	22	8.93	-1.97	2.00	0	13	5	26	0		H. H. TenBroeck.	
Brooksville	Hernando	126	18	80.5	-0.2	96	11†	67	4†	26	6.11	-3.81	1.03	0	16	9	18	4		C. C. Peck.	
Carrabelle	Franklin	10	12					61	27		3.82	-2.74	0.90	0	10					J. J. Blomquist.	
Cedar Key	Levy	10	22			93	13				4.43	-4.22	1.24	0	12				nw.	J. B. Lutterloh.	
Clermont	Lake	105	18	82.6	-0.2	98	1†	65	5	27	7.90	+0.33	1.70	0	12	2	28	1	sw.	S. S. Fesler.	
DeFuniak Springs	Walton	193	13	79.8b	-0.5	95	8†	63	27†	30	5.34	-2.23	1.20	0	12					R. W. Storrs.	
DeLand	Volusia	27	14	79.8	-0.4	94	24	67	4†	24	7.25		2.35	0	14	9	7	15	sw.	O. B. Webster.	
Eustis	Lake	56	20	82.8	+0.6	100	12	69	4†	26	5.80	-1.49	2.06	0	10	14	8	9	sw.	C. T. Smith.	
Federal Point	Putnam	5	19	80.8	+0.1	97	6	66	3†	26	9.56	+2.60	2.43	0	12	10	15	6	se.	E. S. Hubbard.	
Fenholloway	Taylor	75	4	80.7		99	4	60	1†	30	11.53		2.60	0	13	0	18	13	sw.	Miss E. Wigglesworth.	
Fernandina	Nassau	10	18	80.2	-0.8	94	21†	65	28	21	2.18	-3.96	0.46	0	10				se.	W. B. C. Duryee.	
Fort Meade	Polk	125	22	81.2	+0.6	98	20†	65	5	28	8.89	-0.12	2.00	0	18	8	20	3	ne.	G. L. Brodrick.	
Fort Myers	Lee	12	39	80.8	-0.1	92	6†	68	29	23	4.05	-4.17	1.35	0	7	25	5	1	e.	Miss M. M. Gardner.	
Fort Pierce	St. Lucie	6	10	79.8	-0.4	95	22†	68	2†	23	2.75	-3.12	0.95	0	10				se.	T. C. Nicholson.	
Gainesville	Alachua	176	17	81.0	-0.9	97	12	66	28	29	3.45	-4.01	1.18	0	12	11	17	3	se.	John Schnabel.	
Grasmere	Orange	175	13	80.3	-1.8	96	24	66	5	25	8.21		3.02	0	19					J. B. Escott.	
Hilliard	Nassau	69	2	79.0		96	13	58	28	31	5.09		1.06	0	11	16	8	7		B. A. Tibbitts.	
Homestead	Dade	5	1	79.6		95	24	65	1	28	10.36		1.82	0	21	10	20	1	e.	W. J. Krome.	
Huntington	Putnam	56	13			99	10				6.53	-0.02	1.58	0	12				s.	Miss M. P. Wise.	
Hypoluxo	Palm Beach	4	15	81.7	+0.3	96	22	67	1	26	3.32	-2.17	1.29	0	10	15	14	2	e.	G. A. Angevine.	
Inverness	Citrus	43	11	80.2	-0.2	92	6	69	8	21	10.00	-1.19	3.65	0	14	0	22	9		W. H. Miller.	
Jacksonville	Duval	101	40	81.0	+0.1	94	1	68	28	20	2.35	-3.85	0.87	0	14	5	18	8	sw.	U. S. Weather Bureau.	
Jasper	Hamilton	152	10	79.8	-1.5	101	12	60	27†	30	5.66	-0.97	1.10	0	16	6	11	14	w.	Mrs. W. C. Caldwell.	
Johnstown	Bradford	125	11	80.4	-0.9	97	6	60	27†	35	3.94	-4.08	0.97	0	14	10	20	1		A. M. C. Brasch.	
Key West	Monroe	14	40	82.2	-1.5	90	26	72	3	16	3.04	-0.55	0.72	0	13	9	15	7	e.	U. S. Weather Bureau.	
Kissimmee	Osceola	65	18	82.0	-0.0	98	24	69	5†	26	4.23	-3.13	1.04	0	12	1	22	8	sw.	J. A. Simpson.	
Lake City	Columbia	210	26	79.2†	-1.7	95	1†	64	28	27										W. B. Knight.	
Live Oak	Suwannee	109	11	80.8		97	1	60	27†	36	12.20	+5.54	2.05	0	16	6	4	21		J. D. Henry.	
Macleenny	Baker	125	14	79.5	-2.3	95	1†	60	27†	31	6.82	-1.23	2.61	0	11	4	15	12		Griffing Bros. Co.	
Madison	Madison	200	11	80.0	-1.1	97	1	64	27	28	7.92	-0.48	1.84	0	19				sw.	E. J. Vann.	
Malabar	Brevard	24	17	79.2	-2.3	98	23	61	6†	31	4.97	+0.33	1.86	0	12	20	11	0	se.	J. F. Farley.	
Marianna	Jackson	80	8	79.5		96	2	58	28	32	6.05		1.68	0	18				sw.	W. J. Watson.	
Merritts Island	Brevard	20	28	79.4	-2.0	90	24	66	20	22	6.17	+0.63	2.28	0	14	1	27	3	e.	F. Ulrich.	
Miami	Dade			81.7	-0.2	92	1	71	5	20	4.08	-3.16	1.23	0	15	6	9	16	se.	U. S. Weather Bureau.	
Middleburg	Clay	10	10					60	31		8.24	+0.76	2.05	0	18					G. A. Chalker.	
Molino	Escambia	49	9	78.8		98	3	57	28	36	5.06		1.57	0	6	16	4	11	s.	W. H. Trimmer.	
Monticello	Jefferson	207	7	80.2		97	1†	61	26†	36	7.54		1.10	0	10	11	14	6		E. C. Potter.	
Mount Pleasant	Gadsden	260	5	78.4		95	2	56	28	35	5.87	-1.90	0.85	0	12	3	21	7	se.	Miss Addie Grubb.	
New Smyrna	Volusia	9	26																		

TABLE 1.—Climatological data for July, 1911. District No. 2—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
Alabama.																					
Alaga.	Houston.	105	6								5.51		0.99	0	14				sw.	James L. Willis.	
Anniston.	Calhoun.	728	20	76.0	- 1.9	96	2	54	27	32	6.10	+ 1.37	1.11	0	17	4	8	19	s.	U. S. Weather Bureau.	
Ashville.	St. Clair.	685	18	76.6	- 1.7	98	1	54	26	36	4.52	- 0.47	1.12	0	14	12	14	5	sw.	George R. Cather.	
Auburn.	Lee.	732	29	78.6	- 1.1	97	2	58	26	31	2.20	- 3.36	0.61	0	12	3	11	17	nw.	Dr. Jas. T. Anderson.	
Benton.	Lowndes.	149	10								5.23	+ 0.26	1.19	0	13				w.	S. T. Pruitt.	
Bermuda.	Conecuh.	24	24	79.0	- 1.0	95	1	56	27	35	6.03	+ 0.94	1.55	0	18	4	24	3	se.	M. J. Morris.	
Birmingham.	Jefferson.	701	23	76.5	- 3.3	95	3	58	26	26	7.14	+ 2.44	1.75	0	13	5	9	17	s.	U. S. Weather Bureau.	
Calera.	Shelby.	500	10								5.53	+ 0.34	2.00	0	12				e.	L. G. Privett.	
Camp Hill.	Tallapoosa.	738	10	77.1	- 2.3	97	2	55	26	34	3.42	- 1.91	0.54	0	14	15	9	7	sw.	Dr. Lyman Ward.	
Cedar Bluff.	Cherokee.	594	7								5.89		1.60	0	8	5	22	4		Joe L. Daniel.	
Citronelle.	Mobile.	331	23	79.6	- 1.2	95	1	63	26	27	8.07	+ 1.88	1.74	0	18	5	20	6	sw.	Rev. W. H. Rowe.	
Clanton.	Chilton.	590	18	77.6	- 2.1	95	1	55	26	33	2.66	- 2.17	0.42	0	13	5	3	23	se.	Wallace C. Edler.	
Cochrane.	Pickens.	100	1								9.70		2.60	0	10				sw.	T. H. G. Cook.	
Cordova.	Walker.	334	20	77.1	- 2.0	97	2	54	26	33	9.49	+ 4.27	2.10	0	13	10	12	9	s.	Scott Maxwell.	
Cullman.	Cullman.	802	3	75.5		97	2	54	26	36	5.29		1.26	0	17	12	15	4	w.	Eugene A. Grayot.	
Dadeville.	Tallapoosa.	760	6								4.56		1.41	0	11				sw.	Dr. W. B. Fulton.	
Daphne.	Baldwin.	20	20	79.3	- 1.5	92	27	63	29	26	10.49	+ 3.29	1.85	0	14	7	10	14	sw.	John H. Young.	
Demopolis.	Marion.	19	19								5.10	+ 0.87	1.45	0	12	18	4	9	se.	George E. Pegram.	
Evergreen.	Barbour.	200	27	76.8	- 3.7	97	1	56	27	33	8.69	+ 2.31	2.95	0	18	10	11	10	sw.	Dr. J. P. Whitlock.	
Fort Deposit.	Conecuh.	285	27	79.9	- 0.6	99	30	56	28	38	3.74	- 2.50	1.12	0	10	12	0	19	s.	Robt. L. Whitcomb.	
Gadsden.	Lowndes.	520	27	79.4	- 1.7	94	1	60	26	27	3.68	- 1.43	1.10	0	12	12	4		ne.	J. F. Hattemer.	
Goodwater.	Etowah.	621	27	77.7	- 1.8	99	3	55	27	31	3.11	- 1.41	0.78	0	8	11	3	17	e.	D. P. Goodhue.	
Greensboro.	Coosa.	826	16	78.0	- 2.2	101	2	55	26	34	5.68	+ 0.31	2.27	0	12	14	7	10	e.	Miss Daisy Bulce.	
Greenville.	Hale.	220	32	78.6	- 1.7	94	23	61	26	25	4.88	+ 0.95	2.15	0	11	12	5	14	s.	W. E. W. Yerby.	
Hamilton.	Butler.	444	10								4.25	+ 0.46	1.56	0	5					E. M. Lewis.	
Highland Home.	Marion.	15	15	77.0	- 2.1	97	2	52	26	33	4.77	+ 0.41	1.10	0	9				sw.	Prof. H. O. Sargent.	
Livingston.	Crenshaw.	19	19	78.6	- 1.1	94	1	64	26	24	6.29	+ 0.85	2.44	0	14	8	13	10	s.	Prof. Samuel Jordan.	
Lock No. 4.	Sumter.	160	27	79.2	- 2.1	95	2	60	26	30	5.00	+ 0.53	2.00	0	7	18	0	13	e.	Robt. L. King.	
Maple Grove.	Talladega.	510	14	77.0	- 3.0	98	2	56	26	38	7.44	+ 2.42	1.35	0	14	19	0	12	w.	U. S. Engineers.	
Mentone.	Cherokee.	18	18	78.1	- 1.1	99	3	54	25	33	6.38	+ 1.47	1.00	0	13	7	21	3	sw.	Mrs. A. L. Awbrey.	
Milstead.	De Kalb.	1,595	4								5.81		1.94	0	8				w.	E. Mason.	
Mobile.	Macon.	84	39	79.9	- 0.6	92	9	66	26	22	7.53	+ 0.49	2.73	0	10				e.	Evie Oswalt.	
Montgomery.	Montgomery.	240	39	79.1	- 1.9	95	2	62	27	27	4.19	- 0.49	1.64	0	13	7	12	11	sw.	U. S. Weather Bureau.	
Newbern.	Hale.	18	18	79.6	- 2.1	96	2	58	26	31	5.17	+ 0.78	1.67	0	11	7	20	4	s.	Do.	
Oneonta.	Blount.	857	17	74.6	- 3.1	97	4	52	26	35	8.30	+ 2.17	1.80	0	15	7	6	18	w.	D. J. Huggins.	
Opelika.	Lee.	817	32	78.1	- 2.2	95	2	58	26	26	2.22	- 2.82	0.60	0	9	12	5	14	w.	Amilla J. Ketchum.	
Ozark.	Dale.	400	9	80.0		95	1	62	27	26	6.46		1.04	0	12	13	11	7	s.	A. H. Read, jr.	
Prattville.	Autauga.	281	11	77.8	- 2.5	93	1	56	27	31	3.52		1.83	0	10	8	19	4	sw.	Miss Lucy Sellers.	
Pushmataha.	Choctaw.	20	20	79.5	- 1.4	96	2	59	26	31	4.88	- 0.08	0.85	0	13				sw.	Jos. B. Bell.	
Seima.	Dallas.	147	31	80.2	- 1.3	98	1	59	26	31	5.81	+ 1.12	1.70	0	13	8	15	8	s.	W. N. Horn.	
Spring Hill.	Mobile.	312	7	80.2		95	1	64	26	25	6.10		1.20	0	14	3	15	13	w.	Charles F. Brislin.	
Talladega.	Talladega.	554	21	78.2	- 2.1	99	2	56	26	31	7.08	+ 2.44	3.30	0	11	8	16	7	nw.	Spring Hill College.	
Tallassee.	Elmore.	20	20								5.10	+ 0.54	1.08	0	17				s.	W. E. Henkel.	
Thomasville.	Clarke.	385	20	78.4	- 2.8	97	8	56	26	38	5.80	+ 0.63	2.05	0	10	13	2	16	s.	P. A. Noble.	
Troy.	Pike.	581	3	78.5		94	1	61	26	29	2.97		0.65	0	18	2	28	1	s.	J. G. Forster.	
Tuscaloosa.	Tuscaloosa.	230	30	79.2	- 2.0	102	3	58	26	31	8.06	+ 3.58	2.10	0	14	10	4	17	se.	Frank L. Zimmermann.	
Tuskegee.	Macon.	11	11	79.5	- 2.1	100	3	58	26	36	2.76	- 1.75	0.99	0	8	0	26	5	ne.	W. S. Wymann, jr.	
Union Springs.	Bullock.	216	24	79.0	- 2.2	95	2	61	27	28	3.78	- 1.62	0.95	0	14	2	27	2	sw.	Prof. Geo. W. Carver.	
Uniontown.	Perry.	273	25	78.2	- 2.7	95	1	61	19	28	4.44	- 0.71	2.23	0	12	5	24	2	sw.	F. L. Cowan.	
Valley Head.	De Kalb.	1,031	26	76.6	- 0.5	101	3	51	27	36	6.02	+ 0.80	1.30	0	9	12	18	1	s.	P. D. Stevens.	
Wetumpka.	Elmore.	205	19	79.3	- 2.4	98	2	57	27	32	3.97	- 0.92	1.33	0	7	15	0	16	s.	M. T. Floyd, M. D.	
Mississippi.																					
Aberdeen.	Monroe.	210	23	78.4	- 2.2	97	2	56	26	30	5.83	+ 1.21	1.61	0	13	12	5	14	s.	L. D. Godfrey, jr.	
Agricultural College.	Oktibbeha.	424	21	78.0	- 3.1	97	10	57	26	26	6.24	+ 1.61	1.48	0	14	6	24	1	se.	J. R. Ricks.	
Bay St. Louis.	Hancock.	28	18	79.6	- 1.8	92	3	64	28	24	3.85	- 3.03	1.10	0	13	14	9	8	w.	Brother Stanislaus.	
Biloxi.	Harrison.	24	20	80.6	- 1.3	92	3	66	27	23	5.02	- 1.43	2.15	0	9	13	10	8	sw.	Miss M. Josie Pope.	
Booneville.	Prentiss.	504	17	77.2	- 2.6	94	2	58	26	26	9.65	+ 5.05	4.46	0	11	10	17	4	s.	Dr. D. T. Price.	
Brookhaven.	Lincoln.	500	23	79.0	- 2.6	96	2	59	27	29	7.62	+ 2.13	1.96	0	20	5	8	18	sw.	W. J. Bee.	
Columbia.	Marion.	110	7								7.65		1.51	0	21	9	4		s.	N. R. Drummond.	
Columbus.	Lowndes.	191	23	79.6	- 2.6	99	2	57	26	31	6.79	+ 2.08	1.75	0	11	11	16	4	se.	J. B. Love.	
Crystal Springs.	Copiah.	468	19	78.6	- 2.4	94	2	58	27	29	7.36	+ 1.43	1.71	0	18	11	17	3	w.	D. H. Miller.	
Edinburg.	Leake.	3	3	78.2		96	2	55	26	35	5.05		0.98	0	16	4	13	14	sw.	J. Y. Blocker.	
Enterprise.	Clarke.	248	6								4.30		2.00	0	15					J. B. Thompson.	
Fulton.	Itawamba.	2	2								4.30		1.32	0	11	7	1	23	n.	A. L. Summers.	
Hattiesburg.	Forest.	189	18	81.0	- 1.2	100	2	60	27	32	8.52	+ 1.84	3.14	0	9	12	1	18	s.	T. C. Spence.	
Hazlehurst.	Copiah.	460	21	78.3	- 2.6	95	1	59	27	28	7.47	+ 2.60	1.12	0	20	5	3	23	s.	J. D. Granberry.	
Hickory.	Newton.	326	1								6.41		1.05	0	11	11	14	6	w.	T. N. McMullen.	
Jackson.	Hinds.	280	24	79.0	- 2.3	96	2	58	27	29	6.05	+ 1.64	1.71	0	18	0	13	18	sw.	A. S. Nail.	
Lake.	Scott.	446	23	77.8	- 2.1	95	2	55	27	32	4.68	- 0.45	0.80	0	12	6	9	16	se.	Mrs. Eddie McNeel.	
Lake Como.	Jasper.	8	8	78.6		97	2	57	25	35	9.76		1.58	0	17	1	16	14	s.	C. Thigpen.	
Laurel.	Greene.	241	7	79.0		98	23	58	27	31	6.01		1.05	0	17	6	22	3	se.	Thomas W. Flynt.	
Leakesville.	Winston.	17	17	79.8	- 1.5	95	1	60	26	30	7.65	+ 0.22	1.60	0	13	8	9	12	sw.	Dr. Sam Pool.	
Louisville.	Pearl River.	501	22	77.6	- 1.9	95	3	57	26	28	6.02	+ 1.15	1.42	0	13				se.	B. T. Webster.	
McNeill.	Pike.	230	8	78.6		93	2	62	29	28	8.94		2.40	0	13	9	17	5	sw.	Prof. E. B. Ferris.	
Macon.	Noxubee.	185																			

TABLE 2.—Daily precipitation for July, 1911. District No. 2, South Atlantic and east Gulf States.

Stations.	Watershed.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Virginia.																																		
Arvonla	James			T.	.02				.12		.02	.67		.16				.07				T.											1.06	
Ashland	do.							.09			T.	.66	T.	.18	.02	T.		.40				.06			T.								1.41	
Bedford City	do.							.24	1.90					.25	.04			.08				.33											2.74	
Buchanan	do.			.08	.52				1.41				.18	.22				.13					.72										3.47	
Callaville	Chowan											.45	.32	.16	.15			.77															1.85	
Cape Henry	Coast		.35		.06							.28	.22	.22	.23			.50				.03			.01								1.90	
Catawba	Roanoke		.12	.06				2.20		.08	1.77	.22	.23	.71			.08					.09											6.63	
Charlottesville	James							.30			.28	.45	T.	1.50	T.			T.							.43								2.96	
Clarksville	Roanoke			.03								.45	.70	.40	.05														.15				1.78	
Columbia	James			.46							.26			.11								.28			.11								1.22	
Covesville	do.			T.				.10			T.						T.							.82									1.00	
Danville	Roanoke			.76								.30		1.55				.04	.29			T.		T.									3.14	
Diamond Springs	Coast		.65		.09							.13	.30	.89			1.30					.03									.05		3.44	
Hampton	do.		.18									.99	.09	.10	.66			.38	.04	T.						T.							2.44	
Hot Springs	James			.57	.01	.06	.16			.25	.10	.47	.01	.18				.24				.17			.48						.02	.01	2.73	
Ivor	Chowan			.20								.47	.75		.12			.72	.23														2.49	
Lassiter	James										2.50					.75																	3.25	
Lexington	do.			.26				T.	.48		.11	.42	T.	.31				.21				.01			.33				.01	.02	.17		2.33	
Lynchburg	do.							3.65	.75		.72			.01				.03				.06											5.53	
Newcastle	do.		.48	.29	.04			.13	1.79		.35	1.22	.57					.06													.14		5.07	
Norfolk	Coast			.51		.07					.01	1.50	.70	.26			1.41	T.			.01					.03	.03					.50	5.10	
Petersburg	James				.04						.47	T.	.65					.05				.05			.26								1.57	
Randolph	Roanoke											.65		.65	.80			.20															2.34	
Richmond	James										.15	T.	.39	T.				.03				T.											0.57	
Rocky Mount	Roanoke								.64			.15			.04																		0.85	
Saxe	do.			.50					1.18			.25		.15	.48	.05																	2.61	
Spottsville (near)	Chowan										.36	.41		.04				.08	T.														1.83	
Williamsburg	James										2.00	2.25				.15	.85				T.			.20			.15						T.	5.60
North Carolina.																																		
Albemarle	Pedee						.02		.04	T.		.21	.43		.08	.03		.28				.04			.18								1.31	
Beaufort	Bogue Sd.						.05						.32	.44	.26			.09		.18		.35	T.	.02									1.91	
Belhaven	Pungo											.06	.26	.23				.30		.78				.15									3.15	
Brewers	Pedee		1.00	.03				.78	T.	.06	T.	.06	.26	.23				.60				.04	T.										2.46	
Caroleen	Santee				1.13				.33	T.	.35	T.	.03	.13				.51	.66	.17					.16								2.73	
Chalybeate Springs	Cape Fear			.09	.16			.33	.03	.05	.06	.76	T.	.02	T.			.51	.66	.17					.42								3.73	
Charlotte	Santee		.82	.17				.33	.03	.05	.06	.76	T.	.02	T.			.51	.66	.17					.42								3.12	
Chimney Rock	do.			.06	.83	.20			.51	.50	.04		.92	.23				.11				.01			.10						.07	.10	3.67	
Durham (near)	Neuse											.40	.98	.23			.10	.06				.07				.28							1.89	
Eagletown	Chowan			.40								1.06		3.31	.15		1.00	1.43	.30							.45							6.95	
Edenton	Albemarle Sd.								.23				.75										1.00										2.90	
Elizabethtown	Cape Fear																																0.70	
Enfield	Tar			.23		.01						.22	.95	1.30	.42			.10	.30							.40							3.43	
Fayetteville	Cape Fear					.28			.11			.50	.37	.33	.05	.41		.25	.25			.04											2.59	
Goldsboro	Neuse					T.	T.			T.			1.21	.75	.22	.04		.30	.20														2.82	
Graham	Cape Fear								.01	T.								.09	T.														2.21	
Greensboro	do.								.02				.02	1.04				.06	.10					.03									2.22	
Greenville	Tar			.05		.20	.07						.10	1.33	.12	.64		.23	.68	.17				.41									4.03	
Hatteras	Pamlico Sd.												.07	.33				.18	.03	.02				.08	.38								1.03	
Henderson	Tar & R'oke		.02		T.					.22	.02	T.	.36				.39				2.88												8.11	
Kings Mtn. (near)	Santee							1.18	.35		.02	.30									.13												2.00	
Kinston	Neuse					.26					.31	.02	.09				.35	.38	.49	.10				.21		.24							2.45	
Lenoir	Santee			.75	.35		.68	.52		.21	.14			1.25			.03																4.11	
Lincolnton	do.		.05	.20	.03			.02	.24	.02		.12			.38	.01		.20															1.35	
Louisburg	Tar				.10							1.25	1.75		.42			2.00															5.84	
Lumberton	Lumber		.03				.44			.24	.02		.16	1.26		.30		T.	.21	.08													3.75	
Manteo	Roanoke Sd.				.15	.16			.25			.42	T.	.09	T.	.30	1.16		.32					.62	.18								1.92	
Marion	Santee		.03	.30	.20				.35	.42	T.	.09	T.	.30	1.16			.06	.02	1.10					.26								4.19	
Middletown	Pamlico Sd.												.05	.09				.56	.02	1.10													2.82	
Moncure	Cape Fear			.18						.31		.66	.20	.70	1.03			.55	T.														3.81	
Monroe	Pedee		.08					.13	T.		.39			T.	.46			.14		.12	.54												1.96	
Morganton	Santee			1.35	.05		.02	.13	.68		T.		.09	.21	T.			.06															2.68	
Mount Airy	Pedee			T.	.19		.65	.55	.04		.10		1.10	.22																			2.85	
Mount Holly	Santee		.70					.26	.05	.21		.10	.08					.43	.43				.11										2.37	
Nashville	Tar			T.	.22	T.				T.		.20	1																					

TABLE 2.—Daily precipitation for July, 1911. District No. 2—Continued.

Stations.	Watershed.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
<i>South Carolina—Continued.</i>																																		
Bowman	Edisto	.12		.18			.20			.10	.16	.08	.88	.14	.22				.09		.11	.18		.08										2.54
Calhoun Falls	Savannah		.03							.86	.01			1.40		.98	.06			.02		.71			.18	.30								4.49
Camden	Waterloo	.12													.04	.10	.03	.60	.12			.04			.16	.23								3.60
Catawba	Catawba								.66		.61	.08			.04	.70	.30	.18	.30															2.51
Chappells	Saluda																																	1.80
Charleston	Ocean	.36	.02		T.	T.	.17	.01	.03	T.	T.		.03	.01	.13			T.	.55	.90	T.		T.	T.		.02	.16							2.23
Cheraw	Pedee													.20	.08	.18				.02		T.	T.						.21					0.83
Clemson College	Savannah	1.03		.47	.72					.65				.30				1.82				.21			.11	.32								5.63
Columbia	Congaree						.05	.19	.01	T.	.23	.04	.27	.27	.04				.01		T.	.24	.08		.72	.05								2.30
Conway	Waccamaw				1.16	T.				.12			.61	.40	1.18				.58	1.34		.09	T.											5.48
Darlington	Pedee		.11						.06	.80				.35	.55	.03			.20			.07												2.30
Dillon	Little Pedee	.40		.04	.06				.47	T.			1.71	.07	.07			T.	.47		.36	.10												4.07
Effingham	Lynches							T.	.20	.50			.90	.15					.98	.94		.80	.30		.15									4.92
Ferguson	Santee		.48		.17		.03	.18	.08	.20			.03	.60	.65			.02		.94	2.50		.02											5.90
Florence	Pedee									.09	.12			.13	.65	T.					.03		.05	.37		.03	.08							1.55
Georgetown	Ocean												.38	.45	.30	T.			1.08	1.50	T.	T.												3.71
Greenville	Saluda			1.14						.06	.20				.92				.25	2.25	2.39		.07	T.										6.56
Greenwood	do.			.42	.87								.16						1.33	.48					.48		.30							5.45
Heath Springs	Waterloo								.02	.39				.02					.21			.21	.12			.06								1.04
Jacksonboro	Edisto	.04		.06		T.	1.77	.15	.08	.08				2.39		1.36	.12	.08	.15	.28	.39													6.95
Kingstree	Black	.45							.08					.96							.42	T.												4.11
Liberty	Savannah	.01		.50	.02				T.	.02	T.	.50	T.	T.	1.10	.40	T.	2.25			.02	.04			.80									5.66
Little Mountain	Saluda	.35					.05		.05	.65				.80		.10				.45	.12	.08			.08									2.96
Meriwether	Savannah	.48							.48				T.	1.06		.25	1.00		.15			.42												3.84
Newberry	Saluda	.02		.08	.05		.01		.02					1.32	.23	.14	.07	.12				.04				.10	.02							2.27
Pelzer	do.									.52			.20		.14	.06	.24	.70					.10			.20	.72							2.88
Pinopolis	Cooper	.38				.29	.18	.04	.11				.02	.18	.85			.55	.28	.18	.04													7.10
St. George	Edisto		.60		.12		.80		.12	.25	.06		.11	.71	.26	.60			.55	.15		.15												4.48
St. Matthews	Santee	.04			.13					.23			.18	.60		.10	.30			.52		.15												2.25
Saluda	Saluda			.12		.40		1.25		.30	.10			.80	.20	.50	.20					.18				.13								4.18
Santac	Broad	.21			.30		T.	T.	.08					.09	.07	1.29	.58				T.	.28			.15									3.71
Smith Mills	Pedee			.10		.44		.04	.06					.22	.04	.68			.58		1.51													3.67
Society Hill	do.					.31	.55				.09	.20	.06	.05			.30			.52	.10			.15										2.45
Spartanburg	Broad			.02	.03				T.	.07		.02	.07	.10	T.	.12	.17	.17								.07	.07							1.91
Summerville	Ashley	.13		.01		.02	.85	.02	.12	.02				.43	.08	.02	T.	.07	.47	.21	.03	.04	.02											3.54
Trenton	Edisto	.03								.36					1.66	.80		.10			.36													3.43
Walterboro	Ashepoc	1.45		.04		.56		.06	.46	.39				3.00	.10	.04	.05	.12	1.05	.02		.02												7.36
Winnsboro	Broad					T.	T.	T.	.08	.10				.70		.15	.05	.05	.55						.30	.25								2.18
Winthrop College	Catawba			.40					1.01	.05		.18			1.57	.02	.25									.43	T.							3.91
Yemassee	Combahee	T.	.04		.02				.10	1.55	.27			.92	.42	T.	.12	T.	.25	.69	T.	.50	.30											5.18
<i>Georgia.</i>																																		
Abbeville	Ocmulgee	.50	T.	.13	.44		.91	.08		.09	.14	.03		T.	.07		.88	.72	1.85	.20		T.	1.46	.41	T.									7.91
Adairsville	Coosa								.56	.02		.20	.11				1.88				T.	.88		.20	.65									4.50
Albany	Flint		.48	.06	.09		.02	.08	.32	.10	.22			.70	.01	.21	.30	.01	.04	.33	T.	.30	.42	.28										4.25
Allapaha	Allapaha		.58		.57		.30								.23	.05				1.12		.44		.30										4.58
Americus	Flint		.43		.40										1.10				.32	.40	.15			.10									3.02	
Athens	Oconee	T.	.48		1.05	.03				.04	T.			1.51	.06	2.03	.75				.28	.55			.63									7.38
Atlanta	Chat'ho'chee	.44		.61	.05	.03		.14	T.	.13	.03	.40	1.45	.10	.04	1.18					T.	.35		T.	.46									5.52
Augusta	Savannah	.09		.14	.02		T.	T.		.84	T.	.13	.11	.16	.99	.07	.02	2.38			T.	.27	.05	T.										5.27
Bainbridge	Flint		.09		.06	.30	.55		.02	.03			2.12		.22	.48	.28	.90	.27	.02	T.	.18	.22		.29	.05								5.78
Barnesville	do.				T.	.92	.30		.04						T.	.82	1.05	.31		.18		.46		.15		.01								4.26
Blakely	Chat'ho'chee	.16	.12		.58	.80	.13		T.	.18			.21		.90	.38	.10	.29	2.18		1.26	.60	.10	.11	.14	.19	.10							7.60
Butler	Flint			1.35					.72	.60	.71			.75		.95	.49	.24																8.31
Camak	Savannah	.40		.19	.26		T.		.72	.80	.32		2.85		1.79	.85	.90					T.	.28		.18	.31								6.10
Canton	Coosa		.91		.45	.36				.98					3.30			1.84	.44															7.10
Carlton	Savannah																																	6.12
Clayton	do.	.29	T.		.22		T.	.16	T.				.25	.31	.05	.29	2.00				.84	.29	T.	.28										4.98
Columbus	Chat'ho'chee		.18	.03	.02		.27		.15	1.45	1.02		.04	.33	.08	T.	.13		.46			.05	T.	.58	.09									4.88
Covington	Ocmulgee								.40	.25	.05			.10	.15	.40	1.35					.10	T.	.05	.45									

TABLE 2.—Daily precipitation for July, 1911. District No. 2—Continued.

Stations.	Watershed.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Georgia—Contd.																																		
Savannah	Savannah	T.				T.	.14	.02	.15	1.87	T.	.08		.35	.44	T.	.03	T.	.33	.21	.22		T.	T.	T.	.05								3.80
Statesboro	Ogeechee						.39	.70	T.				.17	.02	.37			.36	.22	.13	T.	T.		.40	.22		T.							2.98
Talbotton	Chat'ho'chee			.86	.20	.28		.10	.07	.23			.02		.20	.30	.16	.20	.60	.03			.66									.13		4.04
Tallapoosa	Coosa			.03	.06	.07			.65	.10	.88	T.	1.90	1.90	1.90	1.52						.35	1.37		.11	.48							9.09	
Thomasville	Ocklocknee	.10	.53	.04	.61	.61	T.	T.	1.90	T.			T.	.36	.16	.03	.13	.27	.01	.42		.05	.28		.07	.19					.35	.11	7.61	
Tifton	Suwanee		.51	.31									.79		.90						.10		.05	.28		.19							3.13	
Toccoa	Savannah				.10	.12			.15	.18		.25		2.05	1.80		1.88					.27	.20			.17							7.17	
Vadosta	Suwanee	1.00	.95			T.	1.11				.40				.35	.42		1.20	.30		T.		T.			.80						1.20	7.73	
Valona	Ogeechee	.01					T.		.31	.57				.25	.05		.06		.24	.31	.25	.04	.44			.08							2.58	
Washington	Savannah	.52	.05	T.	1.25				.06	.32				2.10		2.04	.88					T.	.65										T.	7.99
Waycross	Satilla	.65	.15	.17	.13	.09	.05	.02	.08	.26	.01			.42	.47	.02		.85	.75	.02		1.08				.01	.02						14	6.31
Waynesboro	Savannah	.05						.46		.73				2.15	.04	.02	1.70				T.	.60	.21	.15									6.11	
West Point	Chat'ho'chee			.24	.30	.37	.38		.03	.01			.24	2.16	.08	.19					.15	.55	.57	.27	.03	.11							6.12	
Woodbury	Flint		.10			.83	.75		.13	.14	.02	1.31	.10		.60	.18	1.05	.71				.32	.15	.64									7.03	
Florida.																																		
Apalachicola	Coast	.60	.02			.13		.10	1.10	.10				1.43	.74		.65		.03	.3														

Stations.	Watershed.	Day of month.																																Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Alabama—Contd.																																			
Daphne	G. of Mexico.			T.	.38	.43	1.10	.20			.32	1.10		.08				1.32	1.80	1.85	.05	1.05	.46	.35	T.								10.49		
Demopolis	Tombigbee.					.03	.46	.40	.20					.06	.25	.46	1.45	.49						.84	.03	.43							5.10		
Eufaula	Chat'ho'chee	.08	1.38	T.	.30	T.	.42		2.95	T.	.04	.08		.08	.24	.30	.26	24.18	.84	T.	.06	.20	.06		.12	.04							8.60		
Evergreen	Escambia		.40						1.12						.10	.42	.68	15	.08	.11	.06		.10	.10		.25							3.74		
Fort Deposit	do.				.40					1.10			.40	.10		.40	.30	.13		1.10	.30			.10		.25							3.63		
Gadsden	Coosa				.50	.04							.52		.26	.18					T.	.65		.18	.78								3.11		
Goodwater	do.		.01				.07			.33	1.06	.08	.08	.09				.61				.11		.82	15	2.27								5.68	
Greensboro	Black War or				.02		.07			.10		.65	2.15			.31	.78	.13					.10	.42		.15								4.88	
Greenville	Escambia			.77								1.10	.09			.51			1.03		.47	1.56		.42									4.25		
Hamilton	Tombigbee.			.21		.66															.60	.50		.10						1.00			4.77		
Highland Home	Escambia	.16	.21			T.		1.52	.91	.23		.50		.28	.17	.10	.03	1.60	.20		T.	.24			.13								6.29		
Livingston	Tombigbee.				.30	.06						1.21						.58								.48							5.00		
Lock No. 4.	Coosa			.22					.05	.20		.41		.30	.35	T.	.07	.92			1.23	.58	.75	.11	.90								7.44		
Maple Grove.	do.	.13		.81	.30				.35		.06	T.	.22	T.	.11	.77				.42	.47	.89	1.00								.85	T.	1.35	6.38	
Mentone	do.			T.	T.					.15						24.16						43.194		.62									15	.64	5.81
Milstead	Tallapoosa		1.90									10.154	.30									.50	.20	.20	.75		.60							4.53	
Mobile.	G. of Mexico.	T.			12.175	.47	.21		.02	.03	.22	.16			T.	.273	.15	.18	.25	1.10															

* Precipitation included in that of the next measurement.
 ‡ Separate dates of falls not recorded.
 †† Precipitation for the 24 hours ending on the morning when it is measured.
 T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations, July, 1911. District No. 2, South Atlantic and east Gulf States.

Date.	Virginia.								North Carolina.																South Carolina.			
	Lynchburg.		Norfolk.		Richmond.		Saxe.		Charlotte.		Edenton.		Fayetteville.		Hatteras.		Newbern. §§		Raleigh.		Reidsville.		Salisbury.		Wilmington.		Charleston.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	89	65	86	70	89	65	93	59	91	71	87	61	95	69	80	67	89	63	91	67	95	66	96	68	86	75	85	73
2....	95	65	90	70	95	67	98	70	94	71	87	63	96	70	83	69	90	63	92	69	99	65	97	68	86	72	85	72
3....	97	73	91	68	97	72	100	71	95	72	87	71	86	70	83	74	90	66	85	71	97	68	95	68	85	74	87	76
4....	93	71	90	73	95	73	94	73	91	69	90	76	93	71	84	74	92	67	90	71	95	68	94	67	86	74	85	77
5....	92	69	91	72	95	71	95	72	93	71	91	72	93	67	85	76	93	69	90	69	95	66	96	70	86	76	86	78
6....	96	72	92	73	96	72	98	75	92	71	90	73	93	69	84	76	93	69	92	70	98	68	96	68	87	72	86	76
7....	96	70	94	74	100	74	100	76	93	70	92	73	95	71	85	76	94	69	94	72	98	70	98	68	88	75	85	75
8....	87	69	94	75	95	70	95	73	85	73	92	72	88	70	85	75	93	68	90	73	96	69	91	71	86	72	82	76
9....	90	69	93	74	94	71	96	73	86	69	93	72	95	68	86	74	92	68	93	70	96	67	89	68	88	74	86	79
10....	93	73	97	73	97	73	99	75	88	70	92	70	96	72	88	77	96	69	94	72	98	68	92	70	90	73	88	78
11....	92	68	97	75	97	73	100	74	93	71	95	78	98	74	88	77	97	71	98	73	102	71	96	71	93	75	91	77
12....	89	72	89	70	91	70	93	73	87	70	93	70	92	71	86	75	95	72	91	71	100	70	92	70	88	72	90	75
13....	91	69	86	69	91	68	96	74	86	69	86	72	87	71	88	75	89	68	86	70	99	68	94	69	91	72	88	73
14....	86	67	76	69	83	68	85	72	85	70	82	72	79	69	84	72	91	67	80	69	89	66	89	66	86	68	91	73
15....	88	64	84	70	90	66	92	67	88	69	85	75	84	68	81	73	89	65	85	68	90	63	89	66	82	71	84	73
16....	87	62	88	72	90	68	90	65	88	65	87	74	90	66	84	72	89	66	87	68	91	64	89	63	85	71	86	75
17....	84	70	84	69	85	70	91	62	84	70	83	72	81	71	86	73	90	68	83	70	90	69	89	70	85	71	89	74
18....	81	64	79	71	82	66	85	62	86	67	80	70	88	71	82	72	89	66	87	69	82	64	87	65	86	71	88	71
19....	84	62	82	71	87	64	90	69	88	69	82	68	87	66	82	72	88	66	87	68	88	67	90	66	88	69	86	73
20....	91	65	90	72	94	68	93	62	88	70	88	75	91	70	87	72	91	65	88	69	92	66	90	66	88	72	88	74
21....	86	71	85	73	92	68	94	74	85	72	85	70	92	72	82	73	90	70	88	71	94	70	91	71	90	75	94	75
22....	87	65	84	73	87	68	94	78	93	70	89	75	96	70	88	72	92	67	94	72	97	69	97	69	92	74	92	75
23....	87	58	86	71	89	63	96	66	94	69	82	62	94	70	85	74	97	69	89	70	93	64	95	63	90	75	88	75
24....	91	76	91	75	95	75	97	79	89	74	92	73	96	78	87	78	93	71	92	71	97	74	96	71	90	78	93	78
25....	79	64	83	70	86	64	87	61	83	64	85	71	89	69	84	75	86	72	83	67	88	59	88	68	84	74	90	72
26....	82	56	86	64	87	62	90	57	83	62	86	72	91	62	83	73	90	62	85	62	88	59	86	57	88	67	86	65
27....	78	63	78	71	83	66	82	67	85	64	88	72	91	61	82	70	86	65	83	62	82	59	86	60	84	67	87	67
28....	84	57	79	70	86	60	90	60	88	62	86	74	89	63	84	71	89	61	86	62	90	57	90	58	86	65	84	69
29....	87	58	89	68	93	63	94	62	90	67	88	76	92	61	84	70	91	64	88	63	90	62	92	60	87	69	86	72
30....	81	66	86	69	84	67	96	68	88	67	90	78	96	63	88	72	93	64	91	66	95	66	89	64	90	70	86	71
31....	93	66	88	71	92	70	99	68	92	69	90	76	95	70	87	74	94	67	92	65	97	75	95	70	89	72	85	72
Mns..	88.3	66.4	87.4	71.1	90.9	68.2	93.6	69.1	88.7	68.9	87.8	71.9	91.2	68.8	84.7	73.3	91.0	67.0	88.8	68.7	93.6	66.4	92.1	66.8	87.4	72.1	87.3	74.0

Date.	South Carolina.												Georgia.															
	Columbia.		Conway. §§		Ferguson. §§		Georgetown.		Greenville. §§		Newberry.		Society Hill.		Albany. §§		Atlanta.		Augusta.		Dah-longa.		Macon.		Rome. §§		Savannah.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	90	71	91	73	93	73	90	72	91	73	92	70	93	71	98	72	96	71	93	73	93	68	97	72	96	67	90	71
2....	94	72	90	69	93	76	90	72	93	68	95	70	92	72	96	74	89	70	93	74	90	70	92	75	95	70	87	75
3....	94	73	89	70	92	69	90	72	94	68	91	72	90	70	92	72	94	73	94	74	94	63	92	72	98	70	89	74
4....	91	73	89	70	90	70	92	69	87	68	88	70	91	68	96	72	92	70	90	73	90	65	87	71	96	71	87	74
5....	91	70	89	69	90	68	92	70	87	67	91	68	91	68	92	70	86	69	91	71	87	64	90	71	93	69	86	72
6....	94	71	90	70	87	68	93	71	90	66	96	71	94	71	92	70	89	68	93	72	90	65	90	69	94	67	87	72
7....	93	72	91	70	89	68	92	67	87	67	96	72	94	70	93	69	89	67	92	72	92	64	91	71	93	68	85	71
8....	89	71	89	71	93	69	93	74	88	70	94	71	82	69	88	71	85	68	88	72	88	68	89	72	90	71	82	72
9....	89	70	90	70	95	76	93	74	80	71	91	71	90	70	89	71	87	67	85	73	85	65	87	73	93	65	85	70
10....	92	72	93	69	97	70	93	76	85	71	96	70	91	73	92	72	83	69	90	72	87	68	87	72	93	69	90	75
11....	92	73	98	73	98	72	97	75	88	71	98	72	93	73	94	71	88	69	93	73	90	67	90	72	91	70	92	74
12....	94	72	95	75	92	82	96	74	87	70	97	72	91	70	96	71	87	70	93	73	88	68	92	73	90	71	91	73
13....	80	71	92	71	88	72	91	70	85	72	81	71	87	69	92	72	86	69	78	72	84	67	83	73	94	70	88	71
14....	79	69	82	68	84	78	90	68	82	69	85	70	80	67	89	74	82	69	82	71	87	66	76	69	89	70	85	69
15....	83	70	82	70	87	70	86	68	81	65	85	71	80	67	85	71	83	66	87	68	84	62	84	67	89	66	87	69
16....	88	66	89	73	91	74	89	69	82	60	87	64	89	72	89	68	80	64	84	66	80	58	84	70	80	66	88	70
17....	86	72	89	72	87	73	90	72	81	66	87	71	84	70	91	71	81	65	86	73	82	66	88	72	86	67	84	72
18....	89	70	90	71	89	73	91	64	80	64	91	66	88	70	96	73	82	65	87	70	79	58	86	70	86	62	86	70
19....	87	70	87	69	86	72	87	69	89	64																		

TABLE 3.—Maximum and minimum temperatures for July, 1911. District No. 2—Continued.

Date.	Georgia.						Florida.																							
	Thomasville.		Waycross. §§		West Point. §§		Avon Park.		Fort Myers.		Gainesville. §§		Jacksonville.		Key West.		Miami.		Ocala. §§		Orlando.		Pensacola.		Tallahassee. §§		Tampa.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.....	97	71	97	70	98	72	97	71	90	74	96	70	94	74	87	78	92	72	95	71	95	75	88	76	92	70	90	76		
2.....	92	70	93	71	97	74	93	71	90	74	91	75	90	75	88	77	86	71	87	75	92	75	89	78	91	72	85	75		
3.....	90	70	92	70	92	71	87	70	88	72	92	69	89	74	84	72	87	72	93	71	86	73	85	79	87	69	86	71		
4.....	85	70	91	71	89	75	92	70	88	73	93	67	90	74	88	76	88	72	94	68	87	73	86	77	84	70	86	69		
5.....	90	67	94	68	90	69	91	67	85	70	94	68	89	72	88	79	89	71	95	68	93	69	82	70	87	67	88	68		
6.....	91	69	95	71	90	68	94	73	92	74	96	67	90	73	88	74	88	78	97	70	93	74	82	68	88	70	92	73		
7.....	90	67	94	68	90	68	87	72	89	70	94	69	90	70	87	76	86	71	94	70	88	71	83	69	88	67	89	70		
8.....	88	71	87	69	88	71	86	71	86	71	88	70	84	73	86	78	83	72	94	69	87	70	88	68	88	68	89	71		
9.....	86	72	89	72	88	69	89	73	90	72	91	73	84	74	88	78	87	79	91	73	87	72	86	73	84	71	89	74		
10.....	93	70	93	69	87	71	91	72	92	72	96	72	89	75	87	76	87	79	95	71	92	71	86	75	89	71	92	72		
11.....	94	70	94	71	91	70	92	72	87	71	95	71	92	74	87	74	88	78	96	71	94	70	87	76	90	71	92	74		
12.....	93	70	96	70	90	70	90	70	90	71	97	70	93	74	87	77	88	78	96	71	96	71	85	77	91	72	90	74		
13.....	94	70	95	71	89	69	93	71	87	72	93	70	92	75	85	75	89	73	97	71	95	73	86	75	91	70	91	71		
14.....	89	70	90	71	82	70	93	70	89	69	92	67	90	70	86	74	88	74	92	69	82	69	88	78	89	71	91	71		
15.....	84	69	88	70	81	71	92	71	89	70	89	67	86	71	88	79	89	80	89	70	93	70	84	72	82	67	88	72		
16.....	88	68	90	69	84	69	89	69	90	73	89	69	86	72	88	79	88	80	90	70	91	70	81	71	83	67	89	71		
17.....	82	70	85	72	87	71	92	70	88	74	80	70	82	72	88	79	89	75	91	72	89	72	84	76	81	69	88	76		
18.....	83	70	85	71	82	66	91	70	90	74	86	71	87	71	89	79	89	80	92	71	93	71	81	72	82	70	90	74		
19.....	89	69	92	69	85	70	95	74	90	74	91	71	90	75	89	78	90	73	92	73	94	72	83	70	86	70	90	75		
20.....	92	69	92	70	90	70	94	72	92	72	91	71	93	75	89	80	91	72	93	72	97	72	85	77	86	70	91	74		
21.....	90	74	92	73	83	70	93	72	92	75	91	70	93	75	89	78	91	74	95	72	95	74	88	78	86	71	90	75		
22.....	82	70	86	74	78	69	91	71	90	74	89	73	90	72	88	79	91	75	93	74	89	75	88	80	84	74	87	79		
23.....	91	71	89	71	85	69	93	74	92	73	92	71	91	74	89	73	89	77	92	72	91	75	84	79	88	72	90	80		
24.....	91	76	92	71	90	73	96	72	91	73	93	72	92	75	89	80	91	77	95	74	96	74	86	80	85	75	90	76		
25.....	80	67	86	77	85	69	90	72	92	74	90	74	91	75	89	78	91	74	92	74	92	74	81	75	80	75	89	76		
26.....	85	63	87	64	83	58	89	71	92	75	95	73	89	72	90	76	91	72	93	74	85	73	83	68	84	67	85	74		
27.....	88	60	90	58	86	58	85	73	85	71	90	69	87	68	88	79	89	71	95	71	89	70	84	71	85	65	85	71		
28.....	90	60	93	60	92	58	83	69	89	72	93	66	88	68	87	73	89	73	93	72	85	72	86	68	88	65	87	72		
29.....	91	65	93	61	90	62	91	69	91	68	94	69	86	73	87	74	89	72	92	71	90	69	86	73	90	67	92	70		
30.....	92	70	94	66	93	65	90	71	89	70	93	71	87	73	89	77	90	72	92	70	85	71	85	74	88	71	91	70		
31.....	85	69	92	72	91	71	87	71	87	72	91	69	88	73	88	72	90	76	93	70	89	70	85	76	85	70	90	72		
Mns.....	88.9	68.9	91.2	69.4	87.9	68.6	90.8	71.1	89.4	72.2	91.8	70.1	89.1	72.9	87.7	76.7	88.8	74.6	93.2	71.3	91.0	71.9	85.0	74.2	86.5	69.8	89.1	73.1		

Date.	Alabama.																Mississippi.											
	Anniston.		Bermuda.		Birmingham.		Eufaula. §§		Mobile.		Montgomery.		Tuscaloosa. §§		Uniontown.		Columbus. §§		Hattiesburg. §§		Jackson.		Meridian.					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
1.....	95	64	95	71	92	69	97	68	89	74	95	74	95	71	95	72	97	69	96	69	95	71	94	70				
2.....	96	68	94	71	93	69	96	70	90	75	95	74	99	71	94	74	99	71	100	70	96	72	93	72				
3.....	94	69	91	73	95	74	88	68	88	78	90	72	102	73	91	74	97	73	94	72	96	74	94	70				
4.....	93	70	93	70	92	69	85	69	88	75	91	72	94	74	92	71	96	73	96	69	92	68	90	68				
5.....	90	67	87	72	88	69	88	68	84	68	90	70	89	72	87	71	93	73	88	70	88	70	85	69				
6.....	88	66	84	70	85	68	86	67	79	69	86	70	84	70	84	74	87	71	77	70	78	70	79	69				
7.....	88	68	84	68	86	70	91	66	85	73	90	69	85	71	86	69	86	71	84	69	81	69	82	69				
8.....	89	67	93	68	90	68	88	68	90	75	90	72	86	69	92	69	92	68	96	66	90	69	90	67				
9.....	85	66	92	68	87	70	85	65	92	74	90	73	87	72	90	71	91	72	96	70	93	69	88	70				
10.....	88	69	88	70	89	69	85	70	87	74	89	72	90	71	91	70	95	73	95	68	94	70	92	68				
11.....	88	68	87	69	88	70	88	69	87	76	90	72	92	72	92	70	96	72	97	70	93	73	91	70				
12.....	88	71	90	71	86	70	88	69	85	75	91	69	91	70	90	71	87	70	96	72	91	71	87	71				
13.....	90	69	93	69	85	69	91	69	85	74	89	71	88	71	89	71	93	72	95	68	88	71	89	70				
14.....	85	67	87	72	85	70	86	69	87	76	90	73	84	71	87	71	90	71	94	69	88	71	85	71				
15.....	86	67	82	71	84	67	78	69	86	71	78	72	82	72	76	70	86	74	93	72	86	73	79	68				
16.....	84	69	86	70	83	69	85	68	82	72	86	70	85	70	84	70	88	70	93	74	86	70	82	70				
17.....	84	64	87	69	84	64	84	68	83	73	87	71	85	70	85	65	91	71	90	71	88	69	84	67				
18.....	83	60	85	69	83	61	81	69	84	71	86	69	83	61	86	65	86	63	86	74	82	67	80	64				
19.....	85	64	85	69	85	66	83	67	80	70	85	70	91	63	84	61	89	64	92	72	88	68	84	69				
20.....	84	68	91	69	84	70	85	68	85	73	90	70	92	69	88	62	90	69	94	68	92	71	88	70				
21.....	79	69	90	72	80	70	85	69	91	76	87	74	92	70	89	70	91	74	95	69	90	73	87	72				
22.....	81	68	89	75	75	70	85	71	90	78	83	69	88	72	84	70	86	74	96	76	87	75	86	73				
23.....	85	68	87	74	82	70	86	69	90	77	85	71	87	71	84	73	91	72	94	74	90	75	89	74				
24.....	85	67	93	76	84	65	90	74	91	78	90	72	91	72	88	75	84	75	95	76	90	74	88	74				
25.....	80	58	84	67	80	60	80	70	81	71	83	67	88	66	83	68	83	59	88	72	84	66	82	64				
26.....	80	54	87	59	81	58	83	57	86	66	82	63	84	58	83	62	85	57	88	62	84	58	81	59				
27.....	82	54	88	56	83	59	86	56	88	67	84	62	88	67	86	63	88	59	90	60	86	58	84	59				
28.....	86	54	91	56	86	60	89	56	90	68	90	63	90	59	87	61	89	59	89	60	88	60	86	61				
29.....	88	60	93	61	87	64	87	59	88	68	91	65	93	62	91	63	92	61	94	62	92	63	89	62				
30.....	88	67	94	66	89	72	91	63	88	72	91	71	93	68	89	71	90	64	96	66	87	70	89	67				
31.....	83	68	94	69	84	71	87	68	88	76	86	70	89	73	88	68	89	71	94	70	91	70	89	69				
Means.....	86.5	65.4	89.3a	68.7a	85.6	67.4	86.7	67.0	86.7	73.0	88.1	70.1	89.3	69.1	87.6a	68.9a	90.2	68.9	92.6	69.4	88.8	69.3	86.6	68.3				

CLIMATOLOGICAL DATA FOR JULY, 1911.

DISTRICT No. 3, OHIO VALLEY.

FERDINAND J. WALZ, District Editor.

GENERAL SUMMARY.

The distinguishing features of weather conditions of July, 1911, in the Ohio Valley, were: First, the intense heat that obtained during the first 10 to 12 days, and especially on the 3d and 4th, when the high temperatures registered and general distress occasioned were second only to those experienced in the memorable hot July of 1901, which broke all previous records. Numerous prostrations and many deaths resulted from the oppressive heat, which was especially severe in the central and more northerly portions of the district. South of the Ohio River, except in Kentucky, the suffering was not so great, and in the southeastern section, that is, in eastern Tennessee and the more elevated portions of western North Carolina and southwestern Virginia, the heat was not so severe as to cause much, if any, distress.

Second, the remarkably cool weather which prevailed over all the district from the 16th to practically the end of the month, and especially the record-making low temperatures for July that were reported in the period 24th-27th, when previous local records for July low temperatures were broken at numerous stations in several of the States and previous State records were broken in two of the States comprised in the district. Light frost formed in some of the mountain regions as far south as North Carolina, and minimum temperatures from 34° to 40° were reported from places in the mountains.

Third, the droughty conditions and the general suffering of vegetation from lack of sufficient moisture over nearly all the Ohio River drainage area, except that of the Tennessee River Basin, in the extreme southern and southeastern part. While showers were numerous and there were a few fairly general rains, yet the aggregate of precipitation for the month was small and far from supplying the general needs, except over the area mentioned above. The rainfall coming in showers was very unevenly distributed and local in character. In some favored places these showers gave sufficient moisture to effectively relieve the droughty condition, but in many, and in fact most sections, the amount of rainfall was inadequate, and the showers occurring gave only slight and passing relief.

Fourth, the unusually high percentage of sunshine and clear days, notwithstanding that the average number of days with appreciable rainfall was large in some of the States; and fifth, the severity of the local thunderstorms and the large number of deaths, about 27, resulting from lightning. Of these deaths, 12 occurred in Kentucky, 8 in Pennsylvania, 1 in West Virginia, 2 in Alabama, and the rest in Ohio.

The prolonged droughty conditions which had prevailed over so large a portion of the district from early in May to the end of July, together with the extreme heat during the

first part of the latter month, worked fearful and wide disaster to pastures and gardens and threatened many of the field crops. At the end of the month the soil in nearly all parts of the district, except probably the extreme southern portion, was parched, hard, and dry; fields were burned and brown, and all streams and water sources were very low; and while a shortage of water supply for stock and general use had not become critical, it was tending decidedly in that direction.

TEMPERATURE.

The month, as regards temperatures, falls into two distinct divisions: (1) a period of some 10 or 12 days when they were remarkably high, and (2) a period of about 16 days when they were unusually low.

The period of hot weather ran from the 1st to about the 12th, and was particularly severe in the central and more northerly portions of the district. In these sections the mean daily temperature during these 10 or 12 days was 80° and over at practically all the Weather Bureau stations, while on 5 consecutive days it was 85° or over at several stations. It was 90° at Louisville, Ky., on the 3d, 90° at Evansville and Indianapolis, Ind., and 92° at Columbus, Ohio, on the 4th. The latter was the highest mean temperature of any day at any station in the district, and is the highest that has occurred in the Ohio Valley since the memorable July heat of 1901.

Maximum temperatures registered from 90° to 100° and over nearly every day during this hot wave, except at the more elevated stations in the mountain sections of North Carolina, Virginia, and West Virginia. The most intense and general heat was experienced on the 3d and 4th, when maximum temperatures between 100° and 107° were registered in all the States of the district except in southwestern Virginia, where the highest temperature of the month was 95°, and in northern Georgia and northern Alabama, where it was 98°. These high temperatures, generally speaking, have been exceeded or equalled in the Ohio Valley only by the July record of 1901, while at many stations in West Virginia, Ohio, Indiana, and Illinois and at a few stations in Kentucky they break all previous records of high temperature, not only for July, but for all other months. The highest temperature was 107°, at Dayton, Ohio, on the 4th. This has been equalled in Kentucky twice and exceeded once since the records began, in 1889. The highest registered in that State, and which is probably the highest temperature on record in the district, is 112°, and occurred at Paducah, Ky., July 23, 1901.

Fortunately, on the 4th, 5th, 6th, 7th, 9th, and 10th, after a high temperature had been reached in the early afternoon, local thunderstorms that developed later gave temporary relief from the intense heat of the day in many localities. This was particularly noticeable in the central

portion of the district, especially that adjacent to the Ohio River, on those dates. This situation was also noted in eastern Tennessee on the 3d, 8th, and 11th.

About the 13th there was a change to cooler weather, due to an area of high pressure to the northward bringing cool, northerly winds from the Lakes. And on the 13th, for the first time during the month, temperatures were below normal over the larger part of the district, abnormally high temperatures continuing only over the southeastern portion, where the heat had not been so intense. There was a rapid change to warmer, however, during the 14th and 15th, when high temperatures were again registered over much of the district, but particularly in Kentucky and Tennessee, where maximum temperatures registered between 90° and 100° on those days.

On the 16th, following the passage of a moderate trough of low pressure across the central valleys and the Lake region during that day, there came about a decided and what proved to be a permanent change to cooler, and during the rest of the month the temperature was not only below normal practically every day over nearly all the district, but there occurred in the period 24th-27th some of the most unseasonably cool weather for July that has happened in this section of the country for many years.

During the entire cool spell of about two weeks morning temperatures in the forties and fifties were the rule on the majority of the days at nearly all stations, but on the 25th, 26th, and 27th they were largely below 50° and at many stations nearer 40° than 50°, while at several stations variously located in the western portions of New York, Pennsylvania, Maryland, West Virginia, Virginia, and North Carolina they ranged as low as 34° to 40°. Light frost was reported on the morning of the 27th at Bolivar, N. Y., and at Banners Elk and numerous other points in the mountains of North Carolina.

Minimum temperatures of 41° at Erasmus, Tenn., and 42° at Farmers, Ky., on the 27th are the lowest temperatures ever recorded in July in those States, and 38° at Banners Elk, N. C., equals the lowest for that State. Minimum temperature records for July were also broken at many stations in Ohio, Indiana, and Illinois. The lowest temperature of the month in the district was 34° at Burkes Garden, Va., on the 27th. Another noteworthy feature of the cool spell about the 24th to 27th is the remarkable record of low maximum temperatures made at that time at many stations. In Kentucky on the 24th, 25th, 26th, and 29th the maximum temperatures were unusually low. At very few stations in that State did the day temperature go higher than 80° on most of those days, and at one station it did not go above 70° on one day.

There was a rather sudden change to warm weather over the northeastern portion of the district at the end of the month, and on the last day the temperature rose above 90° at stations in Ohio, eastern Kentucky, and the western portions of Pennsylvania and New York.

PRECIPITATION.

Precipitation during the month came mostly as local showers, but there were also a few days of general rain, and while these showers were rather frequent and would have served fairly well in ordinary midsummer seasons, yet this year, on account of the general drought conditions that have prevailed practically from about the 10th of May, the moisture received was insufficient for the needs of pastures, staple growing crops, wells, springs, and

streams, except over very limited areas chiefly in the southern portion of the district.

Over the northern portions of Alabama, Georgia, the extreme western portions of North Carolina and Virginia, and over much of southern, central, and eastern Tennessee the total rainfall of the month was 4 inches or more, somewhat in excess of normal and bountiful. In a few favored localities in other portions of the district rain was about normal and ample, but over the rest of the district from northern Tennessee northward to the northern boundary and over the eastern States of the district the aggregate of rainfall for the month was much under 4 inches and decidedly deficient in both amount and effect. Over large areas in the central, northern, and eastern portions of the district the total rainfall of the month was 2 inches or under and in many localities less than 1 inch. On account of the local character of the rainstorms the distribution of precipitation was very irregular, the amount received varying greatly in neighboring localities. In Kentucky two stations, widely separated, received precipitation in excess of the normal July amount. At one of these stations, Williamstown, where the amount was 6.58 inches, it is the largest July amount received during the past 10 years. The monthly amount of precipitation for the various stations varied between 0.2 inch at Chillicothe, Ohio, and 8.88 inches at Diamond, Ga.

At some stations in several States the total rainfall for the month was the smallest for any July of record. On the other hand, there were a few instances of excessive 24-hour rainfalls in West Virginia, southwestern Virginia, Ohio, North Carolina, and Tennessee.

The periods during which rain was quite general were: 7th-11th; 16th-17th; 20th-21st, and 23d-24th. Practically no rain fell during the first three or four days, and over much of the district during the first six days, and from the 25th to the 29th. On other dates than those mentioned there were scattered showers, varying greatly in amount of precipitation, although mostly light.

Thunderstorms were quite general in the period from about the 4th to the 13th; again on the 16th-17th and the 20th-22d. There were also occasional local thunderstorms on other dates. In several of the States of the district there were 20 or more days with thunderstorms, Ohio leading with 23 days. Wind squalls, with some local damage, attended a number of these storms, and there was hail with quite a few, also the fatalities to human life by lightning were unusually great.

MISCELLANEOUS.

July 3.—The worst storm in the history of Braxton County struck Sutton, W. Va., at 5 p. m. The storm came from the northeast and passed in a southwesterly direction. There were at least 50 houses unroofed in Sutton, a number of stables and many trees blown down, about 6 or 7 porches to houses blown away, a church about a mile from Sutton destroyed, and several cows and horses and one boy killed. The storm covered only a narrow strip.

July 4.—A man was killed in the harvest field during a storm near Barnesville, Ohio, and both horse and rider were killed when Raymond Haley was struck by lightning near Lexington, Ky.

July 7.—A storm at Wheeling, W. Va., wrecked five motor boats and caused the drowning of a young girl who was blown out into midstream while bathing. On the Ohio side of the river a man was drowned by the sudden overflow of a small stream during this storm.

Five persons were reported killed by lightning in the vicinity of Pittsburgh, Pa. Four people standing under a tree in Fayette County, Ohio, were injured by lightning. During a severe electrical storm which passed over Gallatin County, Ky., a young farmer named Spencer Lillard was struck by lightning and instantly killed. A team of mules he was driving was also killed, and William Craig, a relative of Mr. Lillard, was burned, but his injury was not serious.

July 8.—A young man was struck by lightning at Lebanon, Ky., and badly injured, but will recover. One man was killed and several others severely injured at Barbourville, Ky., when lightning struck a carryall in which they were riding. The wagon was demolished, but the horses escaped injury. Miles Williams, while milking a cow, was struck by lightning and instantly killed at Marrowbone, Ky.

July 9.—Lightning knocked a man from a mowing machine, splitting one wheel of the machine, near Lewisburg, W. Va. A colt was killed during the same storm. A man was killed by lightning in Fairfield County, Ohio.

July 10.—During the progress of a violent electrical storm which passed over Shelby County, Ky., John H. Grubbs, a prosperous farmer, was instantly killed and four others stunned by a bolt of lightning which struck a barn in which they had taken refuge. The barn was not injured.

July 11.—Severe thunderstorms accompanied by high winds occurred in many parts of Ohio during the afternoon, and several deaths from lightning occurred. A young farmer residing near Paducah, Ky., named Dal. Heath, was killed by lightning which struck a tree under which he had taken shelter. His brother was also injured. Lightning struck the barn of Walter Owens, of Goodnight, Ky., near Glasgow, Ky., killing Mr. Owens, but the barn, though filled with hay, was not injured. At Somerset, Ky., during a thunderstorm, lightning struck the huge repository oil tank of the Cumberland Pipe Line Co. The tank contained nearly 24,000 barrels of crude oil, which was entirely consumed. Will Pierce and Clayton Eads were killed and two other men severely injured by lightning near Barbourville, Knox County, Ky. In Benton and Warren Counties, Ind., a hailstorm swept over about 16 sections of land. It is said that it lasted only about 15 minutes, during which time

hailstones as large as hulled walnuts fell. The path of the storm was about 3 miles in width and 14 miles in length. Over a large part of this area the crops were utterly destroyed, corn particularly suffering.

July 12.—During a severe electric storm, W. P. Ward, a merchant and postmaster at Bardstown Junction, Ky., was instantly killed by lightning while working in the field. During the same storm, Everett Middleton, a young farmer, while working in his cornfield near Shepherdsville, Ky., was killed by lightning. His team was also killed. The Rev. Mr. Gibson was struck and killed by lightning while riding along the road on Indian Creek, Knox County, Ky. This was the fourth person to lose his life, besides several thousand dollars' worth of property destroyed, in this county within five days.

July 22.—Three persons were killed and two injured by lightning in the vicinity of Greensburg, Pa. Mrs. Harmon and child were killed by lightning at Pleasant Hill, Ala., and two mules were killed by lightning and a man badly shocked in the same locality.

July 24.—A rather severe gale occurred at Columbus, Ohio. The wind reached a velocity of 63 miles per hour from the west, which is only 1 mile below the maximum record for July at that place. The wind was high over the greater portion of Ohio, and considerable damage was done to buildings, growing crops, fruit, and service wires.

ENGINEERING NOTES.

The Government dam and lock in the Ohio River at Fernbank, 7 miles below Cincinnati, Ohio, has been completed, and the first boat was locked through on July 22. This is Dam No. 37 in the general scheme of improvement of navigation on the Ohio River, and its completion is a big step in this great work to make the Ohio River navigable the entire year. This is the largest movable wicket dam in the world and the only one made entirely of concrete and steel. The dam is 1,185 feet long and cost, completed, \$1,300,000. It will insure to Cincinnati and for 25 miles above the dam a permanent navigable stage of 9 feet of water the year round. This work was officially inspected by the Rivers and Harbors Committee of Congress on their recent trip down the Ohio River from Pittsburgh to Cairo.

TABLE 1.—Climatological data for July, 1911. District No. 3, Ohio Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.					Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.		
New York.																				
Alegany.....	Cattaraugus.....	1,441	5	69.8	.....	98	4†	40	18	42	2.55	.....	0.88	0	13	11	17	3	nw.	Charles E. Whitney.
Bolivar.....	Allegheny.....	1,800	17	69.6	+ 2.8	101	4	38	27	44	2.97	- 1.85	1.05	0	12	11	18	2	sw.	B. O. Newton.
Olean.....	Cattaraugus.....	.....	3	.....	.....	.....	.....	.....	.....	.....	2.47	.....	0.68	0	11	20	7	4	e.	John W. Alles.
Pennsylvania.																				
Aleppo.....	Greene.....	1,135	10	73.1	+ 1.1	98	3	45	27	39	1.37	- 3.72	.60	0	3	23	7	1	sw.	J. S. Hinerman.
Baldwin.....	Butler.....	1,404	5	73.2	.....	97	4	42	21	42	1.84	.....	.75	0	9	20	11	0	w.	S. H. Templeton.
Beaver Dam.....	Beaver.....	674	17	.....	.....	.....	.....	.....	.....	.....	2.34	- 1.68	1.33	0	7	15	10	6	sw.	R. C. McCullough.
Brookville.....	Jefferson.....	1,173	20	71.9	.....	105	4	39	27	51	1.34	- 3.65	.46	0	7	.....	.....	.....	sw.	H. C. Bartholomew.
Clarion.....	Clarion.....	1,078	26	.....	.....	.....	.....	.....	.....	.....	2.57	- 3.00	1.84	0	7	22	9	0	s.	J. A. Miller.
Claysville.....	Washington.....	1,127	7	74.8	.....	102	3†	46	20†	41	1.69	.....	.36	0	10	13	16	2	w.	E. T. Buchanan.
Confluence.....	Somerset.....	1,352	27	.....	.....	.....	.....	.....	.....	.....	1.98	- 3.23	.65	0	8	9	7	15	w.	Grant Pyle.
Franklin.....	Franklin.....	965	37	73.1	+ 1.7	100	5	43	27	40	1.58	- 3.17	.45	0	9	23	2	6	w.	F. E. Dixon.
Freeport.....	Armstrong.....	772	38	.....	.....	.....	.....	.....	.....	.....	1.41	- 3.10	.47	0	7	18	6	7	sw.	Mrs. Anna R. Burtner.
Greensboro.....	Greene.....	768	22	.....	.....	.....	.....	.....	.....	.....	1.17	- 4.01	.36	0	6	10	15	6	sw.	James Kramer.
Greenville.....	Mercer.....	950	15	70.6	+ .1	101	4	36	26	45	2.25	- 2.89	.73	0	8	24	6	1	w.	A. M. Orr.
Indiana.....	Indiana.....	1,350	14	73.6	+ 3.1	103	4	46	18	38	1.85	- 2.61	.61	0	6	19	12	0	s.	R. W. Wehrle.
Johnstown.....	Cambria.....	1,184	23	75.1	+ 1.8	101	5	47	26	37	1.43	- 3.24	.68	0	10	8	21	2	s.	E. C. Lorentz.
Lock No. 4.....	Washington.....	718	25	.....	.....	.....	.....	.....	.....	.....	2.16	- 2.56	.93	0	8	17	13	1	s.	R. T. McGowan.
Lycippus.....	Westmoreland.....	1,420	19	73.8	+ 1.1	99	4	50	26	29	3.15	- 1.99	1.20	0	7	.....	.....	.....	nw.	Murray Forbes.
Pittsburgh.....	Pittsburgh.....	842	41	75.4	+ .8	100	4	54	25	29	2.17	- 2.25	1.12	0	7	12	16	3	nw.	U. S. Weather Bureau.
Saegertown.....	Crawford.....	1,116	20	67.6	- 1.7	97	4	39	27	46	1.41	- 3.39	.35	0	10	11	14	6	w.	J. G. Apple.
Skidmore.....	Lawrence.....	1,000	7	72.2	.....	98	4	43	26	35	.90	.....	.65	0	2	.....	.....	.....	s.	W. H. Stoner.
Somerset.....	Somerset.....	2,250	55	71.2	+ 2.6	97	3	43	26	37	5.19	+ .28	1.33	0	7	4	25	2	nw.	W. M. Schrock.
Uniontown.....	Fayette.....	999	23	73.9	+ .8	96	4	51	26	33	2.73	- 2.94	.85	0	10	5	19	7	sw.	Wm. Hunt.
Warren.....	Warren.....	1,137	22	70.0	+ .3	98	4	42	28	41	3.20	- 2.19	.80	0	11	.....	.....	.....	sw.	Anna Simpson.
Maryland.																				
Deer Park.....	Garrett.....	17	69.2	+ 2.4	104	6	35	1	56	2.96	- 2.04	1.76	0	6	.....	.....	.....	.....	.....	S. P. Specht.
Grantsville.....	do.....	17	68.0	- 0.3	91	4	43	26	40	2.02	- 2.89	0.90	0	7	13	16	2	.....	.....	J. S. Miller.
Oakland.....	do.....	11	67.8	+ 1.3	91	3†	39	23	44	2.63	- 1.94	1.14	0	9	20	10	1	w.	.....	R. E. Weber.
West Virginia.																				
Bancroft.....	Putnam.....	574	10	76.4	.....	101	3†	47	27	43	1.90	- 2.64	0.56	0	9	19	1	11	ne.	James Hill.
Beckley.....	Raleigh.....	2,440	12	69.6	- 2.0	93	1	42	26	44	1.67	- 2.23	0.70	0	5	21	6	4	w.	John A. Ewart.
Bens Run.....	Pleasants.....	622	10	76.6	+ 1.5	106	4	53	27	36	3.78	- 1.62	2.09	0	7	20	11	0	.....	J. D. Riggs.
Bluefield.....	Mercer.....	2,563	17	71.0	- 0.7	92	3	45	27	33	2.97	- 1.63	0.41	0	15	12	16	3	.....	Norfolk & Western R. R.
Buckhannon.....	Upshur.....	1,472	20	72.0	- 0.5	96	4	44	27	42	1.24	- 4.19	0.58	0	5	22	9	0	.....	H. A. Darnall.
Cairo.....	Ritchie.....	667	10	77.0	+ 3.1	102	3†	50	25	38	1.95	- 2.06	0.70	0	5	4	20	7	s.	Van A. Zevely.
Central Station.....	Doddridge.....	900	11	72.1	- 1.0	99	4	43	27	41	3.53	- 0.10	1.58	0	8	8	23	0	se.	G. W. Sherwood.
Charleston.....	Kanawha.....	598	24	76.6	.....	100	3	53	27	31	2.55	- 1.39	0.95	0	6	24	6	1	w.	R. C. Hewes.
Creston.....	Wirt.....	612	11	74.9	+ 0.2	101	3†	49	25†	40	2.60	- 1.09	0.99	0	5	19	8	4	w.	J. M. Reed.
Cuba.....	Jackson.....	544	10	74.4	+ 1.6	100	4	46	25†	.....	1.16	- 3.18	0.62	0	5	8	23	0	w.	C. T. Perry.
Elkhorn.....	McDowell.....	1,933	19	70.4	- 1.8	94	3	46	27	36	3.76	- 1.61	1.30	0	8	19	12	0	sw.	J. J. Lincoln.
Elkins.....	Elkins.....	1,940	13	70.6	0	93	5	47	27	38	3.67	- 0.97	0.95	0	10	8	21	2	w.	U. S. Weather Bureau.
Fairmont.....	Marion.....	879	18	76.4	.....	105	4	48	23	44	3.50	- 1.37	1.60	0	10	.....	.....	.....	sw.	H. Glenn Fleming.
Glenville.....	Gilmer.....	738	22	76.1	+ 1.8	103	4	48	27	40	2.43	- 2.77	0.65	0	7	6	13	12	sw.	John Holt.
Grafton.....	Taylor.....	985	18	74.9	+ 2.2	101	4	48	23	40	5.02	+ 0.07	1.85	0	10	20	11	0	.....	John W. Snider.
Green Sulphur Springs.....	Summers.....	1,600	16	70.4	- 1.9	93	2†	44	27	37	3.60	+ 0.01	1.45	0	12	9	22	0	w.	Arthur George.
Hinton.....	do.....	1,400	21	73.8	- 0.5	95	2†	50	26†	38	2.08	- 1.58	0.46	0	8	24	4	3	w.	J. B. Lavender, C. E.
Huntington.....	Cabell.....	510	17	76.0	- 0.6	101	3	51	27	33	2.02	- 2.51	1.68	0	6	25	1	5	w.	L. H. Hutchinson.
Lewisburg.....	Greenbrier.....	2,200	11	70.6	- 0.9	94	3†	44	27	40	2.82	- 1.09	0.79	0	9	27	4	0	sw.	Geo. T. Argabrite.
Logan.....	Logan.....	665	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. C. Ragland.
Lost Creek.....	Harrison.....	1,033	15	72.0	- 0.6	98	4	43	27	45	1.75	- 3.29	0.65	0	6	21	8	2	w.	Allen Smith.
Madison.....	Boone.....	704	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	S. E. Bradley.
Mannington.....	Marion.....	967	10	72.6	.....	99	3	46	23	40	4.66	+ 0.26	1.61	0	10	24	7	0	w.	Jas. A. Morgan.
Marlington.....	Pocahontas.....	2,169	17	70.2	+ 0.8	94	2	40	15	45	2.07	- 3.57	0.70	0	9	14	16	0	.....	C. J. McCarty.
Morgantown.....	Monongalia.....	1,250	36	74.0	+ 0.4	98	4	51	26	33	4.23	- 0.97	1.22	0	8	17	12	1	sw.	Horace Atwood.
Moundsville.....	Marshall.....	640	10	76.2	+ 2.2	103	3†	51	26†	42	1.59	- 2.88	0.71	0	7	20	4	7	sw.	W. L. Brown.
New Cumberland.....	Hancock.....	987	14	74.8	+ 1.7	103	4	46	27	42	3.20	- 1.42	1.10	0	8	13	11	7	sw.	Frank S. Evans.
New Martinsville.....	Wetzel.....	634	18	77.2	+ 1.7	104	3	51	27	38	1.63	- 3.42	0.72	0	5	17	14	0	s.	Wm. Ankron.
Nuttallburg.....	Fayette.....	2,252	18	67.8	.....	90	4†	46	27†	36	6.94	+ 2.65	1.80	0	8	17	6	2	.....	Miss Donna Tully.
Parkersburg.....	Wood.....	638	23	76.6	+ 0.9	102	3	54	27	31	1.63	- 3.03	0.61	0	6	14	13	4	sw.	U. S. Weather Bureau.
Parsons.....	Tucker.....	1,662	12	70.4	- 0.1	96	4	43	23†	42	1.68	- 2.81	0.90	0	4	11	20	0	.....	J. W. Swisher.
Philippi.....	Barbour.....	1,192	18	74.5	+ 2.0	101	4	44	27	42	1.76	- 3.52	0.91	0	8	19	12	0	w.	J. D. Dadisman.
Pickens.....	Randolph.....	2,785	20	67.0	- 2.3	87	4	46	25†	33	3.55	- 2.76	0.98	0	9	19	10	2	w.	Dr. J. L. Cunningham.
Pineville.....	Wyoming.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. V. Senter.
Point Pleasant.....	Mason.....	553	21	76.8	+ 0.3	103	4	50	27	40	1.88	- 2.14	0.98	0	8	13	10	8	se.	W. D. Holmes.
Powellton.....	Fayette.....	904	14	74.2	+ 0.1	101	3	48	27†	40	5.04	+ 0.73	1.80	0	9	11	19	1	.....	Morris Hansford.
Princeton.....	Mercer.....	2,469	10	66.0	- 2.1	85	4	43	27	30	5.45	- 0.65	3.00	0	7	9	21	1	w.	H. Scott.
Robertsburg.....	Putnam.....	574	11	75.8	0	102	3	47	25†	43	0.60	- 3.14	0.40	0	3	19	2	10	s.	E. P. Turley.
Ryan.....	Roane.....	639	8	73.8	.....	98	3	45	25	40	1.97	.....	0.95	0	11	11	20	0	.....	Wm. E. Ryan.
Smithfield.....	Wetzel.....	919	8	71.2	.....	93	4	46	26	32	4.11	.....	1.73	0	10	14	8	9	ne.	G. M. Whisler.
Spencer.....	Roane.....	710	13	73.1	.....	96	4	46	27	37	2.02	- 2.30	1.05	0	5	0	31	0	.....

TABLE 1.—Climatological data for July, 1911. District No. 3—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Ohio—Continued.																				
Camp Denison.....	Hamilton.....			75.4	- 1.2	102	3†	48	27	40	2.79	- 0.81	0.91	0	10	15	13	3	sw.	Henry F. Pinkvoss.
Canal Dover.....	Tuscarawas.....			73.6	+ 0.6	101		46	27	39	1.75	- 2.92	0.45	0	7	16	14	1	sw.	Ed. S. Stangluff.
Canton.....	Stark.....			73.3	+ 1.1	99		46	27	34	3.48	- 1.29	1.67	0	8	25	3	3	sw.	Carl H. Meyer.
Cardington.....	Morrow.....			73.7	+ 1.7	101	3†	47	26	37	2.45	- 1.79	0.62	0	6	20	3	8	sw.	J. W. Shaw.
Chillicothe.....	Ross.....										0.20				2					Marion Mackey.
Cincinnati.....	Hamilton.....			76.9	- 0.8	102	4	54	26	28	4.61	+ 1.07	1.43	0	9	10	15	6	w.	U. S. Weather Bureau.
Circleville.....	Pickaway.....			76.0	+ 0.7	103	4	50	25	35	3.12	- 0.82	0.80	0	9	19	8	4	se.	Hon. S. W. Courtright.
Clarington.....	Monroe.....			74.4		101	4	48	25	39	1.35		0.45	0	6	11	19	1	sw.	Col. S. Tschappat.
Columbus.....	Franklin.....			75.7	+ 0.4	104	4	52	25	27	3.29	- 0.36	1.46	0	11	16	11	4	n.	U. S. Weather Bureau.
Coshocton.....	Coshocton.....										2.91		0.83	0	9					Mrs. Ada Jeffries.
Dayton.....	Montgomery.....			76.4	+ 0.2	107	4	47	27	39	1.36	- 1.89	0.69	0	7	22	6	3	sw.	Mrs. Edith L. Boyer.
Delaware.....	Delaware.....			74.5	+ 0.4	104	3	46	27	38	2.43	- 1.60	0.96	0	9	17	8	6	sw.	Prof. L. L. Hudson.
Demos.....	Belmont.....			75.2	+ 2.3	100	2†	49	25	41	1.98	- 2.61	0.67	0	8	19	12	0	s.	J. T. Dysart.
Dennison.....	Tuscarawas.....			74.8		105	4	46	27	41	1.77		0.76	0	7	17	14	0	s.	Water Supply Co.
Frankfort.....	Ross.....			76.6	+ 2.0	102	3	48	27	41	0.55	- 2.67	0.45	0	2	18	11	2	sw.	O. A. Cory.
Garrettsville.....	Portage.....			70.8	+ 1.2	99	4	41	27	39	2.20	- 1.74	0.84	0	8	18	12	1	sw.	S. M. Luther.
Graafville.....	Licking.....			74.7	+ 1.4	105	3	47	26†	40	2.48	- 1.37	0.90	0	8	26	1	4	sw.	Dr. L. E. Davis.
Gratiot.....	do.....			73.5	+ 0.7	100	4	48	26	32	3.31	- 1.45	1.01	0	11	13	18	0	sw.	W. B. Longsteth.
Green.....	Adams.....			73.4	- 2.4	105	4	48	25†	41	2.57	- 1.79	0.75	0	5	23	8	0	w.	W. F. Kenyon.
Green Hill.....	Columbiana.....			69.8	- 0.9	99	4	42	27	37	2.25	- 2.17	0.71	0	7	18	13	0	sw.	Jos. E. Bentley.
Greenville.....	Darke.....			74.4	+ 0.9	100	3	50	27	33	1.28	- 1.46	0.51	0	7	21	5	5	s.	Geo. A. Katzenberger.
Hillsboro.....	Highland.....			76.0	+ 0.5	100	3†	48	25	36	0.97	- 3.17	0.43	0	4	10	19	2	sw.	Carey H. Roush.
Ironton.....	Lawrence.....			76.1	+ 1.5	102	3	46	26	41	3.70	- 0.51	2.40	0	9	15	16	0	sw.	James Bull.
Jacksonburg.....	Butler.....			75.5	- 0.5	101	3	48	25	35	1.82	- 1.60	1.20	0	7	12	12	7	sw.	Dr. J. B. Owsley.
Kenton.....	Hardin.....			71.6†	- 1.8	103†	4	45†	17†	38†	2.81	- 0.74	1.83	0	6	19	10	2	w.	N. S. Martin.
Killbuck.....	Holmes.....			71.8	- 1.1	102	4	45	27	37	2.83	- 1.75	1.40	0	10	20	10	1	ne.	Lloyd C. Schonauer.
Lancaster.....	Fairfield.....			75.3	+ 1.3	100	3†	51	26†	36	1.27	- 3.31	0.10	0	9	23	2	6	sw.	R. L. Renshaw.
McConnelsville.....	Morgan.....			74.0	+ 0.3	99	3	49	27	34	1.83	- 2.52	0.74	0	8	8	19	4	ne.	C. H. Morris.
Marietta.....	Washington.....			76.9	+ 3.0	104	3	51	27	35	4.62	- 0.01	2.53	0	9	9	12	10	s.	Prof. T. D. Biscoe.
Marion.....	Marion.....			74.6	+ 0.7	105	3	47	27	39	3.39	- 0.99	1.05	0	8	10	16	5	sw.	Dr. E. H. Raffenger.
Millfordton.....	Knox.....			73.2	+ 0.8	103	4	47	18†	38	4.14	- 0.00	1.77	0	7	21	10	0	sw.	L. H. Burgess.
Milligan.....	Perry.....			73.2	- 0.6	103	4	44	27	43	2.38	- 1.64	0.87	0	6	13	18	0	sw.	V. C. Eveland.
Millport.....	Columbiana.....			71.1	- 0.5	99	4	43	27	38	1.79	- 2.49	0.60	0	7	7	24	0	w.	G. F. Copeland.
Nelle.....	Coshocton.....			71.6	- 1.7	101	4	43	27	47	2.60	- 2.32	0.75	0	8	15	15	1	w.	Miss Ethel L. Gamertsfelder.
New Alexandria.....	Jefferson.....			76.2	+ 3.0	102	3†	47	21	35	3.45	- 1.33	1.70	0	6	27	2	2	w.	Mrs. Mary K. Pennell.
New Berlin.....	Stark.....			71.7	- 1.5	99	4	44	27	38	3.12	- 1.15	1.05	0	8	22	9	0	sw.	Clayton Holl.
New Waterford.....	Columbiana.....			72.3	+ 0.7	100	3†	46	26	37	3.18	- 1.45	1.55	0	6	23	7	1	sw.	Sam. C. Scott.
Ohio State University.....	Franklin.....			74.5	+ 1.0	102	4	48	27	35	1.59	- 1.60	0.45	0	11	14	8	9	sw.	Prof. H. C. Lord.
Pataaskala.....	Licking.....			73.8	- 0.1	103	3	48	18	37	2.80	- 1.32	1.10	0	12	8	23	0	sw.	J. N. Ridenour.
Peebles.....	Adams.....			73.2	- 1.0	102	3	42	27	46	0.53		0.45	0	5	17	12	2	sw.	Ora O. Smalley.
Philo.....	Muskingum.....			74.8	+ 0.2	100	3	50	25	32	2.65	- 1.90	1.01	0	7	16	14	1	sw.	L. C. Burekholter.
Piqua.....	Miami.....										1.87		0.83	0	4	16	11	4	se.	Harry L. Roberts.
Plattsburg.....	Clark.....			73.8	- 0.2	102	4	46	26	34	2.23	- 1.91	1.05	0	7	12	12	7	w.	F. E. Stewart.
Portsmouth.....	Scioto.....			74.8	- 1.9	101	3	50	27	42	3.01	- 1.02	0.68	0	9	9	0	22	sw.	Dr. H. A. Shirmann.
Prospect.....	Marion.....																			Nell J. Gast.
Rittman.....	Wayne.....			73.2	+ 1.4	98	3	44	27	39	1.75	- 2.72	0.45	0	7	20	9	2	w.	J. B. Gish.
Shenandoah.....	Richland.....			72.4	+ 0.4	101	4	46	26†	36	2.15	- 2.67	0.80	0	8	8	22	1	nw.	T. B. Arnett.
Sidney.....	Shelby.....			75.4	+ 0.4	104	3†	48	27	37	3.36	- 0.28	1.76	0	7	19	5	7	sw.	Hamline B. Blake.
Somerset.....	Perry.....			76.6	+ 1.7	103	3	50	26	32	2.46	- 1.87	0.86	0	10	22	9	0	w.	Miss M. W. C. Sheridan.
Springfield.....	Clark.....										4.02	- 0.02	2.06	0	11	9	18	4	sw.	W. A. Webster.
Summerfield.....	Noble.....			73.6		101	3†	48	26†	41	4.10		1.31	0	7	12	19	0	s.	H. R. McClintock.
Syracuse.....	Meigs.....			77.1		105	3	50	27	40	1.86		0.52	0	7	13	15	3	sw.	E. G. Campbell.
Thurman.....	Gallia.....			75.9	- 0.2	98	3	52	25†	36	1.24	- 2.44	0.62	0	4	9	15	7	sw.	D. D. Thomas.
Urbana.....	Champaign.....			74.0	+ 0.5	106	3	45	26†	44	3.80	- 0.61	1.30	0	14	11	17	3	sw.	Prof. J. H. Williams.
Warren.....	Trumbull.....			73.6	+ 1.3	100	4	44	27	44	1.73	- 2.82	0.75	0	7	21	3	7	sw.	M. D. McCorkle.
Waverly.....	Pike.....			74.3	- 1.5	99	3	47	27	40	1.42	- 2.36	0.62	0	7	16	14	11	sw.	Dr. Fern Burt.
Waynesville.....	Warren.....			74.0	- 0.6	99	4	50	25†	27	1.02	- 1.47	0.55	0	4	17	13	1	sw.	Charles Michener.
Wooster.....	Wayne.....			71.8	+ 0.4	101	4	43	27	37	3.36	- 1.21	1.46	0	10	19	11	1	nw.	Experiment station.
Youngstown.....	Mahoning.....										1.90	- 1.71	0.65	0	7	27	1	3	w.	G. R. Patton.
Zanesville.....	Muskingum.....										2.17	- 2.18	0.55	0	8	26	2			S. C. Sprague.
Virginia.																				
Big Stone Gap.....	Wise.....	1,540	20	71.2	- 1.3	91	3	49	27	32	4.88	- 0.50	1.80	0	10	14	14	3	w.	John W. Fox, sr.
Blacksburg.....	Montgomery.....	2,170	20	70.6	- 0.3	94	3	43	27	37	3.70	- 1.12	1.70	0	10	7	15	9	w.	Agri. Experiment Sta.
Burkes Garden.....	Tazewell.....	3,250	16	64.4	- 2.8	87	3	34	27	41	3.33	- 1.28	1.35	0	9	13	15	13	w.	C. H. Greever.
Elk Knob.....	Lee.....	3,243	8	72.8		89	5†	52	25	24	5.71		2.55	0	14	11	13	7	sw.	Henry Nicoll.
Ivanhoe**.....	Wythe.....	2,028	7	70.0		90	3	52	27	28	4.92		2.63	0	13	13	17	1	w.	Miss Alice G. Jewett.
Lebanon.....	Russell.....	2,131	1	70.2		93	3	44	27	35	6.02		3.06	0	7	15	7	9	sw.	R. W. Swain.
Marion.....	Smyth.....	2,224	16	70.5	- 1.8	95	3†	42	26	42	5.84	+ 1.35	1.46	0	15	14	13	4	se.	S. W'n State Hospital.
Mendota.....	Washington.....	1,350	2								3.20		0.95	0	11					Frank M. Barker.
Radford.....	Montgomery.....	1,773	2								4.47		1.34	0	5					Arthur Roberts.
Speers Ferry.....	Scott.....	1,221	15								1.87	- 3.59	0.64	0	7					Mrs. L. E. Venable.
Wytheville.....	Wythe.....	2,293	18	70.0	- 2.6	93	3	45	27	37	1.69	- 2.75	0.68	0	10	17	14	0	w.	U. S. Weather Bureau.
North Carolina.																				
Altapass.....	Mitchell.....	2,629									3.73		0.94	0	11	2	17	12	s.	W. J. Woodward.
Andrews.....	Cherokee.....	1,800	1	73.2		98	3	46	27	37	6.51									

TABLE 1.—Climatological data for July, 1911. District No. 3—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Georgia.																				
Diamond.....	Gilmer.....	2,020	21	73.0	- 1.3	98	3	48	27	36	8.88	+ 2.33	4.53	0	13	8	15	8	.....	R. A. Kimzey.
Mineralbluff.....	Fannin.....			72.8		95	1	46	26	33	5.02		1.41	0	15	8	22	1	n.	J. M. Clement.
Alabama.																				
Bridgeport.....	Jackson.....	660	11								6.44	+ 1.21	1.96	0	10				w.	R. L. Moore.
Decatur.....	Morgan.....	573	29	77.7	- 2.1	99	3	56	26	31	5.15	+ 0.68	1.23	0	11	12	7	12	e.	Ernest A. Carriger.
Florence.....	Lauderdale.....	563	27	77.8	- 1.4	95	2	60	25	23	7.33	+ 2.56	1.75	0	13	16	3	12	e.	Robt. E. Coburn.
Guntersville.....	Marshall.....	580	1	77.4		101	3	55	26	35	8.53		2.26	0	14	9	6	16	ne.	L. S. Long.
Madison.....	Madison.....	573	17	75.9	- 3.3	99	2	54	26	36	7.68	+ 3.32	1.75	0	13	10	20	1	sw.	Albert Klish.
Riverton.....	Colbert.....	360	14	74.1	- 4.7	96	1	50	26	36	5.74	+ 1.28	2.02	0	11	8	8	15	e.	Ernie J. Moore.
Scottsboro.....	Jackson.....	652	28	75.4	- 2.7	99	3	53	27	34	6.42	+ 1.15	1.20	0	14	6	8	17	sw.	H. A. Caldwell.
Tuscumbia.....	Colbert.....	488	29	78.1	- 1.9	99	2	57	26	32	5.10	+ 0.54	2.10	0	11	7	5	19	se.	Samuel Moore.
Tennessee.																				
Ashwood.....	Maury.....	725	32	75.2	- 2.9	96	3	50	27	36	2.56	- 1.88	0.53	0	9	8	9	14	s.	Mrs. Joseph W. Fleming.
Benton.....	Polk.....	880	26	76.0	- 1.0	98	3	50	27	35	7.90	+ 3.25	2.38	0	14	5	21	5	n.	George L. Williams.
Bird's Bridge.....	Greene.....		5								5.68		1.50	0	10	16	4	11	e.	David B. George.
Bluff City.....	Sullivan.....		14								3.43		1.20	0	9	10	7	14	.....	John W. Fisher.
Byrdstown.....	Pickett.....	1,026	18	75.2	- 0.7	98	3	49	27	40	2.40	- 3.15	1.10	0	6	5	21	5	so.	John Lacy.
Carthage.....	Smith.....	500	27	77.4	0.0	101	3	52	27	34	5.11	+ 0.72	1.80	0	10	14	5	12	ne.	Earl C. Pickering.
Cedar Hill.....	Robertson.....	625	11	77.8	- 1.1	102	3	52	26	37	5.71	+ 2.25	2.10	0	9	20	9	2	s.	J. Frank Ruffin.
Celina.....	Clay.....	494	8								2.96		1.40	0	11	15	5	11	w.	Stephen B. Anderson.
Center Point.....	Chester.....	400	14																Halbert H. Bailey.	
Charleston.....	Bradley.....	709	14								5.47	- 1.33	1.80	0	11	17	2	12	n.	John T. Weeks.
Chattanooga.....	Hamilton.....	808	32	76.1	- 1.7	96	3	56	28	29	5.40	+ 1.53	1.62	0	15	7	14	10	w.	U. S. Weather Bureau.
Clarksville.....	Montgomery.....	500	48	77.6	- 0.3	100	4	53	27	33	2.77	- 1.18	1.05	0	7	17	10	4	.....	Prof. James A. Lyon.
Clinton.....	Anderson.....	800	23								2.52	- 3.21	0.68	0	8	21	1	9	sw.	Hugh Evans.
Dandridge.....	Jefferson.....		7																James E. Swann.	
Decatur.....	Meigs.....	850	15	76.0	- 1.6	97	3	51	26	34	7.24	+ 2.17	1.87	0	13	12	17	2	sw.	J. Worth Lillard.
Dickson.....	Dickson.....	800	15	74.8	- 2.8	97	3	51	25	31	5.31	+ 1.29	1.64	0	8	16	9	6	s.	Nathan R. Sugg.
Dover.....	Stewart.....	500	16	78.4	0.0	105	3	52	25	38	3.14	- 0.18	1.87	0	6	18	6	7	s.	Asa M. Tippet.
Dunlap.....	Sequatchie.....	726	2	75.4		100	2	50	27	37	5.84		2.03	0	13	11	17	3	.....	S. Bradford Boyd.
Elizabethton.....	Carter.....	1,575	21								1.79	- 2.89	0.70	0	6	19	4	8	e.	Charles Boyd.
Erasmus.....	Cumberland.....	1,850	14	70.7	- 1.5	95	3	41	27	40	5.36	- 0.51	1.42	0	11	14	12	5	se.	Mrs. Sara E. Ashley.
Florence.....	Rutherford.....	560	29	75.6	- 1.9	94	3	53	25	31	1.77	- 2.50	0.46	0	9	16	11	4	s.	Erastus P. Bell.
Franklin.....	Williamson.....	648	21	75.5	- 1.8	93	3	54	28	28	4.69	+ 0.92	2.16	0	10	13	8	10	.....	Young M. Rizer.
Hall's Hill.....	Rutherford.....		9								3.94		0.85	0	7	17	0	14	s.	Ed F. Wright.
Harriman.....	Roane.....	841	16								4.16	- 1.91	1.39	0	7	10	21	0	s.	Robert R. Ayres.
Hohenwald.....	Lewis.....	983	25	74.6	- 1.9	95	3	50	26	35	3.63	- 1.12	0.55	0	12	10	19	2	s.	John Lutzelman.
Iron City.....	Lawrence.....	600	14	75.2	- 2.5	96	3	50	26	34	7.15	+ 3.15	2.25	0	10	4	26	1	sw.	Capt. H. Paul Seavy.
Jefferson City.....	Jefferson.....		1								4.21		1.87	0	10				.....	Calvin C. Maddox.
Johnson City.....	Washington.....	1,620		75.6	+ 1.1	100	2	49	26	39	1.69	- 4.11	0.65	0	10	14	12	5	n.	Ward Crosby.
Johnsonville.....	Humphreys.....	364	15	77.2	- 1.6	102	3	51	25	38	4.64	+ 0.44	1.32	0	11	12	11	8	s.	Miss Sallie B. Matthews.
Kingston.....	Roane.....		20								3.86	- 1.04	1.02	0	11	19	0	12	n.	Henry Crumbliss.
Knoxville.....	Knox.....	977	40	75.8	- 0.4	97	3	56	27	29	4.31	+ 0.10	1.15	0	6	7	17	7	sw.	U. S. Weather Bureau.
Lebanon.....	Wilson.....	522	2	76.2		99	3	52	27	34	5.46		1.85	0	11	13	10	8	s.	H. Logan Fields.
Lewisburg.....	Marshall.....	727	16	76.3	- 2.1	98	3	52	27	33	5.85	+ 1.00	2.02	0	12	16	10	5	s.	Dr. Robert D. Crutcher.
Livingston.....	Overton.....	1,065		74.6		104	3	48	28	37	4.55		1.05	0	8	10	19	2	ne.	L. H. Carlock.
Loudon.....	Loudon.....	816	8								4.37	- 1.29	1.08	0	10	15	8	8	w.	Robert W. Clark.
Lynnville.....	Giles.....	770	23	75.6	- 1.7	93	3	54	27	29	5.95	+ 0.49	2.21	0	11	5	24	2	s.	Col. James H. Burrow.
McGhee.....	Monroe.....		7								6.31		1.60	0	12	21	0	10	s.	Miss Alice L. Headrick.
McMinnville.....	Warren.....	1,011	27	74.8	- 1.6	97	3	50	25	36	3.34	- 2.07	0.82	0	11	7	20	4	e.	J. Tilden Sparkman.
Maryville.....	Blount.....	1,050	15	74.8	- 2.9	94	4	53	25	33	5.28	+ 0.29	1.30	0	9	15	9	7	e.	Mrs. Sam T. Broyles.
Mountain City.....	Johnson.....	2,486	14	69.2	- 0.9	90	2	43	26	38	5.68	- 0.40	1.47	0	15	15	14	2	.....	Edward E. Barry.
Nashville.....	Davidson.....	654	40	76.6	- 2.8	97	3	57	28	27	3.34	- 1.01	1.50	0	9	9	12	10	e.	U. S. Weather Bureau.
Newport.....	Cocke.....	1,280	21	73.9	- 2.6	98	3	55	26	28	5.50	+ 0.77	1.14	0	14	15	7	9	.....	Dr. Charles T. Burnett.
New River.....	Scott.....	1,215	4								1.70		0.52	0	6	16	2	13	nw.	Burl W. Buttram.
Palmetto.....	Bedford.....	770	18	75.8	- 2.4	97	3	53	27	30	4.85	- 0.42	1.41	0	9	17	11	3	s.	Mrs. Ross Woods.
Pinewood.....	Hickman.....		4	75.8		98	2	50	25	38	4.21		1.90	0	8	15	5	5	s.	Miss Carrie Cash.
Pope.....	Perry.....	400	14	78.2	- 0.7	106	4	50	25	45	1.24	- 2.51	0.36	0	6	18	10	3	s.	Miss Bessie Howard.
Rogersville.....	Hawkins.....	1,150	26	74.5	- 0.1	96	5	48	27	39	2.41	- 2.49	1.00	0	11	11	13	7	e.	Fred Beal.
Rugby.....	Morgan.....	1,410	23	73.0	- 1.0	96	2	42	27	42	2.71	- 2.59	0.65	0	9	6	10	15	se.	Samuel G. Wilson.
Savannah.....	Hardin.....	442	27	75.8	- 3.1	96	3	50	26		7.80	+ 3.26	1.80	0	9				.....	William Fort Bell.
Sevierville.....	Sevier.....		5	74.4		95	2	52	26	32	3.59		1.41	0	11	2	11	18	sw.	Herbert O. Eckel.
Sewanee.....	Franklin.....	2,000	15	74.2	- 0.6	92	3	55	27	28	7.95	+ 2.81	3.47	0	9	2	10	19	s.	Arthur H. Noll.
Sparta.....	White.....	920	5	75.4		98	3	50	28	36	4.45		1.60	0	8	10	12	9	w.	Ernest H. Hull.
Springdale.....	Clairborne.....	1,058	21	76.4		97	5	60	8	35	3.20		1.60	0	6	24	4	3	w.	Mrs. Lucy E. Breeding.
Springville.....	Henry.....	377	8	76.7		101	2	50	25	39	4.52		1.55	0	12	21	8	2	s.	Hudnall A. Boden.
Tazewell.....	Clairborne.....		14								2.06		0.57	0	9	13	9	9	sw.	J. Caloway Carr.
Tullahoma.....	Coffee.....	1,075	23	74.3	- 2.0	93	2	52	27	31	8.44	+ 3.78	3.00	0	11	10	17	4	s.	Reuben T. Moore.
Walling.....	White.....	909	8								3.76		1.02	0	10				.....	John K. Roberts.
Waynesboro.....	Wayne.....	753	25	75.2	- 1.4	96	4	51	27	35	7.77	+ 3.19	2.02	0	11	7	17	7	sw.	Harry C. Boyd.
Wildersville.....	Henderson.....	400	14	76.6	- 1.0	98	3	53	27	32	3.83	- 0.34	1.10	0	9	14	10	7	s.	William R. Wilson.
Worsham.....	Sumner.....	550	10								4.05		1.40	0	7	14	11	6	.....	James G. Elizer.
Yukon.....	Lincoln.....	850	14	74.9	+ 3.4	93	4	51	28	32	5.94	+ 1.62	1.95	0	10	5	24	2	se.	William P. Watson.
Kentucky.																				
Alpha.....	Clinton.....		17	73.4	- 3.2	95	3	50	27											

TABLE 1.—Climatological data for July, 1911. District No. 3—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.		
Kentucky—Continued.																				
Farmers.	Rowan.	668	5	74.0	.....	99	4	42	27	46	2.30	.....	1.15	0	5	15	9	7	Miss Gertrude Sorrell.	
Frankfort.	Franklin.	560	20	77.4	+ 1.0	97	29	50	26	30	0.91	- 3.06	0.22	0	8	28	1	n.	J. H. Roberts.	
Franklin.	Simpson.	691	7	76.4	- 1.3	98	3	51	27	33	2.40	- 1.29	0.97	0	6	4	27	0	J. E. Newman.	
Greensburg.	Green.	581	19	73.8	- 2.6	97	3	46	27	40	2.58	- 2.11	1.20	0	6	18	0	13	L. C. Alcorn.	
High Bridge.	Jessamine.	762	8	.....	.....	.....	.....	.....	.....	.....	3.35	.....	1.57	0	6	25	2	4	Miss Lulu Wood.	
Hopkinsville.	Christian.	524	15	78.4	- 0.1	103	37	50	25	38	2.09	- 2.22	0.80	0	7	15	1	15	W. F. Randle.	
Irrington.	Brookridge.	13	76.4	- 1.1	97	3	52	26	34	1.44	- 1.99	0.78	0	4	21	4	6	sw.	W. J. Pigott.	
Leitchfield.	Grayson.	635	15	75.0	- 1.4	97	3	50	25	33	1.95	- 2.57	0.66	0	6	19	8	4	se.	John E. Stone.
Lexington.	Fayette.	989	23	75.6	- 1.0	98	3	53	25	28	0.92	- 3.52	0.60	0	9	7	11	13	s.	U. S. Weather Bureau.
Loretto.	Marion.	681	14	74.4	- 1.8	99	3	45	25	39	1.87	- 2.29	0.60	0	5	25	3	2	.....	Loretto Academy.
Louisville.	Jefferson.	525	39	78.4	- 0.2	104	3	55	26	30	3.43	- 0.31	1.58	0	9	13	12	6	sw.	U. S. Weather Bureau.
Marion.	Crittenden.	16	77.4	- 0.4	100	3	52	26	31	2.15	- 1.84	0.68	0	5	12	13	6	sw.	B. C. Paris.	
Maysville.	Mason.	524	14	76.2	- 0.8	105	37	48	26	40	3.38	- 1.13	0.89	0	7	22	6	3	se.	Mrs. Mary D. Marsh.
Middlesboro.	Bell.	1,128	16	74.2	- 0.3	97	3	50	25	35	4.20	- 1.68	1.40	0	13	15	16	0	.....	B. H. Perkins.
Mount Sterling.	Montgomery.	930	21	76.0	+ 0.4	102	3	50	25	37	1.64	- 3.37	1.00	0	6	24	5	2	s.	James O'Connell.
Owensboro.	Davies.	479	15	76.6	- 1.2	99	3	51	26	35	0.91	- 3.22	0.35	0	5	18	4	9	se.	Henry S. Berry.
Paducah.	McCracken.	341	22	.....	.....	.....	.....	.....	.....	.....	2.06	- 1.88	0.90	0	6	25	0	6	s.	S. A. Fowler.
Paintsville.	Johnson.	.....	0	75.2	.....	100	3	47	25	40	0.77	.....	0.43	0	3	22	4	0	.....	R. L. Atkinson.
Pikeville.	Pike.	.....	3	.....	.....	.....	.....	.....	.....	.....	1.22	.....	0.36	0	5	25	0	6	.....	I. M. Williams.
Richmond.	Madison.	926	19	76.6	- 0	101	3	53	25	32	3.72	- 0.01	1.39	0	10	18	5	8	.....	J. W. Crooke.
St. John.	Hardin.	777	15	74.6	- 0.7	100	3	45	25	37	0.99	- 2.64	0.60	0	4	24	1	6	.....	Bethlehem Academy.
Scott.	Kenton.	13	75.6	- 1.4	103	3	49	26	35	2.24	- 1.33	0.52	0	10	14	14	3	s.	E. B. Wilson.	
Shelby City.	Boyle.	1,087	17	74.2	- 1.1	101	4	45	25	44	2.06	- 2.18	0.65	0	9	20	7	4	w.	W. E. Grubbs.
Shelbyville.	Shelby.	759	22	77.9	+ 0.8	105	3	50	27	34	1.16	- 3.04	0.76	0	4	21	8	2	w.	C. R. Burnett.
Taylorsville.	Spencer.	489	9	75.4	- 0.4	100	3	46	25	41	0.96	- 3.88	0.44	0	7	11	14	6	s.	E. D. Bourne.
Williamsburg.	Whitley.	939	15	74.8	- 2.0	99	3	47	27	40	3.66	- 2.54	1.81	0	7	24	0	7	e.	Noble C. Jones.
Williamstown.	Grant.	943	9	74.6	- 0.5	98	4	49	25	28	6.58	+ 2.14	2.27	0	8	27	3	1	.....	Mrs. Sarah E. Carter.
Indiana.																				
Anderson.	Madison.	892	16	75.5	+ 1.2	105	4	48	25	37	2.19	- 1.36	1.40	0	6	19	8	4	sw.	W. H. Stanton.
Attica.	Fountain.	522	1	.....	.....	.....	.....	.....	.....	.....	4.50	.....	1.76	0	10	.....	.....	.....	.....	Robt. E. Ray.
Bloomington.	Monroe.	744	16	74.8	- 1.5	101	4	46	26	38	0.66	- 3.19	0.20	0	7	22	5	4	sw.	Earl E. Ramsey.
Bluffton.	Wells.	835	16	74.7	+ 0.8	104	47	47	22	40	0.65	- 2.89	0.45	0	5	8	20	3	w.	Tom R. Johnston.
Butler.	Jennings.	767	26	76.6	+ 0.7	103	47	47	27	38	0.89	- 2.69	0.23	0	6	24	6	1	.....	C. F. Hole.
Cambridge City.	Wayne.	941	20	73.6	+ 0	102	3	44	22	43	1.28	- 2.32	0.38	0	10	26	0	5	se.	Charles Lemberger.
Columbus.	Bartholomew.	632	28	75.5	+ 0.1	104	4	45	26	43	0.88	- 2.39	0.30	0	5	24	1	6	sw.	John A. Perry.
Connorsville.	Fayette.	769	29	75.6	+ 1.3	106	4	46	27	41	0.80	- 2.51	0.42	0	3	10	20	1	sw.	H. T. Swindler.
Crawfordsville.	Montgomery.	780	1	75.8	.....	106	4	45	26	42	2.34	.....	0.95	0	5	14	10	7	sw.	P. H. Burns.
Delphi.	Carroll.	668	26	75.1	+ 0.8	105	4	46	26	39	3.32	- 0.47	0.86	0	11	14	9	8	.....	L. A. Higginbotham.
Eminence.	Morgan.	782	5	73.7	.....	99	4	45	26	39	2.06	.....	1.52	0	4	19	12	0	sw.	E. E. Kelso, M. D.
Evansville.	Vanderburg.	386	35	78.6	- 0.7	101	3	56	26	25	0.86	- 2.95	0.37	0	7	8	21	2	s.	U. S. Weather Bureau.
Farmersburg.	Sullivan.	1,101	13	75.2	- 0.8	100	4	50	27	34	1.00	- 3.25	0.36	0	5	7	22	2	s.	Maurice Yeager.
Farmstead.	Randolph.	29	73.4	- 0	97	47	4	50	25	32	1.07	- 2.34	0.52	0	5	22	2	7	w.	W. J. Davison.
Greensburg.	Hancock.	905	8	74.8	.....	100	4	48	26	35	0.61	.....	0.35	0	3	3	22	6	s.	Prof. W. C. Goble.
Greensburg.	Decatur.	954	15	76.6	+ 1.0	101	4	42	26	34	1.08	- 3.28	0.50	0	5	16	13	2	s.	C. C. Morrison, M. D.
Huntingburg.	Dubois.	462	3	76.9	.....	101	4	49	26	45	2.48	.....	0.75	0	6	.....	.....	.....	.....	H. Dufendach.
Huntington.	Huntington.	741	18	74.4	+ 0.2	98	47	48	26	37	1.51	- 2.13	0.65	0	6	16	10	5	sw.	Chas. McGrew.
Indianapolis.	Marion.	822	40	76.0	- 0.2	103	4	51	25	25	2.35	- 1.78	1.63	0	7	8	18	5	s.	Section Center.
Jeffersonville.	Clark.	455	29	77.3	- 0.5	106	4	52	27	34	2.01	- 1.93	1.08	0	10	15	12	4	e.	John C. Loomis.
Judyville.	Warren.	.....	4	74.0	.....	103	4	42	26	45	1.49	.....	0.71	0	8	18	7	6	s.	Dale R. Warrick.
Kokomo.	Howard.	840	19	72.4	- 2.2	101	4	45	26	37	2.17	- 1.28	0.78	0	7	18	10	3	sw.	P. H. Robertson.
Lafayette.	Tippecanoe.	617	32	75.5	+ 1.0	104	4	46	26	37	2.96	- 0.83	1.44	0	9	24	1	6	se.	Wm. J. Jones, Jr.
Laurel.	Franklin.	31	73.2	.....	.....	102	4	45	27	40	1.27	.....	0.80	0	6	18	5	8	w.	Burch Schultze.
Logansport.	Cass.	620	31	76.0	+ 0.6	106	4	45	26	41	3.43	+ 0.14	0.89	0	9	22	4	5	e.	Chas. Massena.
Madison.	Jefferson.	460	19	76.6	+ 1.0	98	5	49	25	37	1.65	- 1.94	1.29	0	6	74	19	1	sw.	Miss F. Cooperider.
Marion.	Crawford.	363	29	73.8	- 2.4	96	47	44	27	41	0.46	- 3.81	0.16	0	5	11	15	5	sw.	J. M. Johnson.
Marion.	Grant.	814	25	74.8	+ 0.7	102	47	47	26	37	1.07	- 1.98	0.57	0	4	24	2	5	s.	James F. Hood.
Mauney.	Rush.	980	31	73.3	- 0.2	99	47	45	22	39	1.72	- 1.52	0.45	0	9	9	15	7	sw.	Elwood Kirkwood.
Monticello.	White.	674	1	.....	.....	.....	.....	.....	.....	.....	2.27	.....	0.69	0	7	21	6	4	s.	J. E. Loughry.
Moore Hill.	Dearborn.	980	10	75.2	+ 0.3	100	4	49	25	37	1.71	- 1.19	0.80	0	10	21	4	6	sw.	W. S. Bigney.
Mount Vernon.	Posey.	410	25	77.3	- 1.3	97	47	50	26	34	0.83	- 3.48	0.30	0	4	23	3	4	sw.	Guy B. Green.
Paoli.	Orange.	611	14	75.0	- 1.7	102	4	42	25	45	0.64	- 3.77	0.32	0	4	15	12	4	sw.	James A. Gillum.
Princeton.	Gibson.	481	29	78.6	+ 1.5	103	47	49	26	42	1.05	- 2.34	0.40	0	5	18	10	3	s.	Albert Mills.
Richmond.	Wayne.	972	26	72.2	- 1.6	100	4	44	22	38	0.66	- 3.01	0.40	0	6	9	20	2	.....	Walter Vossler.
Rochester.	Fulton.	775	6	75.6	.....	101	4	49	26	28	1.89	.....	0.54	0	5	16	3	12	.....	G. P. Keith.
Rockville.	Parke.	722	25	76.0	+ 1.3	99	4	48	26	40	2.04	- 1.69	0.75	0	5	7	18	6	s.	Dr. W. N. Wirt.
Rome.	Perry.	370	8	78.7	.....	105	3	49	26	41	1.39	.....	0.99	0	8	24	5	2	sw.	Adam Anspach.
Salamonia.	Jay.	.....	6	73.7	.....	103	4	44	22	41	1.47	.....	0.61	0	6	12	5	12	sw.	Chas. V. Skinner.
Salem.	Washington.	717	18	75.2	- 1.5	101	4	45	27	43	2.23	- 1.14	1.15	0	6	11	16	4	sw.	Emmet S. Allen.
Scottsburg.	Scott.	570	17	79.0	+ 1.4	105	4	53	26	36	3.58	- 0.17	2.37	0	3	13	15	3	sw.	Frank H. Park.
Seymour.	Jackson.	610	24	76.1	+ 0	106	4	46	26	40	2.45	- 1.19	1.12	0	6	5	25	1	nw.	J. Robt. Blair.
Shelbyville.	Shelby.	768	7	75.7	.....	103	4	42	26	37	1.16	.....	0.65	0	5	13	17	1	sw.	Edgar G. Hodson.
Shoals.	Martin.	523	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	7	9	15	7	sw.	Oliver H. Greist.
Terre Haute.	Vigo.	498	21	76.4	- 1.0	104	4	50	26	34	2.41	- 0.95								

TABLE 1.—Climatological data for July, 1911. District No. 3—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Illinois—Continued.																				
Metropolis.....	Massac.....	346																		Prof. M. N. McCartney.
Montrose.....	Effingham.....	599	11	76.2	— 0.5	101	4	45	26†	44	1.01	— 1.81	0.59	0	5	14	15	2	sw.	J. C. Spittler.
Mount Carmel.....	Wabash.....	424	10	76.2	— 0.8	100	3†	50	26	34	0.88	— 2.31	0.28	0	8	23	3	5	.....	Mrs. H. M. Phillips.
New Burnside.....	Johnson.....	556	16	77.9	— 0.8	103	3†	50	26	38	3.17	— 1.34	1.55	0	6	25	1	5	.....	Mrs. Geo. Harris.
Olney.....	Richland.....	486	24	76.8	— 1.0	100	4	49	26	37	1.28	— 2.46	0.38	0	5	12	13	6	sw.	Victor E. Phillips.
Palestine.....	Crawford.....	500	29	76.2	— 0.2	101	4	49	26	34	2.26	— 1.57	1.30	0	4	10	14	7	se.	Duane Shaw.
Paris.....	Edgar.....	600	18	75.8	— 0.1	103	4	48	27	39	1.79	— 1.48	1.00	0	4	19	12	0	sw.	H. P. Twyman.
Philo.....	Champaign.....	700	27	75.2	+ 0.6	103	4	46	26	39	2.73	— 1.12	1.36	0	6	17	13	1	s.	H. A. Burr.
Rantoul.....	Champaign.....	768	20	75.8	+ 0.2	103	4	48	26	38	2.26	— 1.50	1.00	0	7	26	2	3	sw.	William Breiner.
Robinson.....	Crawford.....	500	11	76.2	— 0.1	100	3†	50	26	34	2.13	— 2.55	1.10	0	5	18	8	5	se.	A. P. Woodworth.
Sumner.....	Lawrence.....	459	5	76.3	.....	98	4	48	26	37	0.56	.....	0.25	0	3	21	1	9	s.	O. A. Fyffe.
Tuscola.....	Douglas.....	644	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. W. Lester.
Urbana.....	Champaign.....	725	9	75.3	.....	102	4	47 ^b	26	36 ^b	0.62	.....	0.24	0	6	12	19	0	sw.	Prof. J. G. Mosier.

a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

‡ Estimated by observer.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for July, 1911. District No. 3, Ohio Valley.

Stations.	Watershed.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
<i>New York.</i>																																		
Allegany.	Allegany.					T.	.04	.07				.02			T.		.04	.88	.07		.75	.18	.09		.24	.04	.03			.03	.07	2.55		
Bollivar.	do.						.32	.06				.08	T.				.06	1.05			.65	.08	.06		.38	.02	.10			.11		2.97		
Olean.	do.							.40				.10					.03	.62	.06		.69		.20		.18	.07		.04		.08		2.47		
<i>Pennsylvania.</i>																																		
Aleppo.	Ohio.						.60										.08	.20			.25	.05	.07		.18	.06						1.37		
Baldwin.	Allegheny.										.20		.75				.30	T.			.16	.21	.13		.19		.02			T.		1.84		
Beaver Dam.	Ohio.										.38						.30				.11	.46	.12		.18						.04	2.34		
Brookville.	Allegheny.										.05						.20				.20	.03	.23		.18					.06		1.34		
Clarion.	do.						.06	.05				.84					.35				.15	.36	.21		.35							2.57		
Claysville.	Ohio.				.04		.02	.14	.05			.08	.18	.22			.32				.20	.03	.13		.65					.15		1.69		
Confluence.	You'og'ny.										.34						.29				.04	.33	.13		.17							1.98		
Davis Island Dam.	Ohio.										.01	.15	.32				.36	.02			.90	.43	.23		.41				.04	T.		2.46		
Derry Station.	Allegheny.						.50				.33	.12	.45				.24				.21	.10	.10		.18	.10	.03					1.58		
Franklin.	do.						T.	T.			.33	.12	.45				.24				.07	.47	.06		.12							1.41		
Freepot.	do.										.33	.12	.45				.30								.36	T.				.10		1.17		
Greensboro.	Monongahela.							.12				.05					.27				.13	.48	.50		.22					T.	T.	2.96		
Greensburg.	You'og'ny.						.43				T.	.93	T.	T.			T.	.40	.03		.05	.40	T.		.60	.02	T.			T.	T.	2.25		
Greenville.	Ohio.										.30		.14				.58				.28	.03	.03		.19		.06			.03		1.61		
Grove City.	do.										.42						.35	T.			.06	.10	.27		.18					T.	.01	2.42		
Hers Island Dam.	Allegheny.										.01	.42					.14				.61				.48							1.85		
Indiana.	do.						.36	.04			.22						.20				.10	.89	.44		.31		.22	.15				2.76		
Irwin.	Monongahela.						.21				.24						.10		.02		.05	.03	.32		.68	.01			T.	.08		1.43		
Johnstown.	Allegheny.						.09					T.	T.	.05			.40				.08	.85	.05		.30							2.16		
Lock No. 4.	Monongahela.				.05							.12					.38				.11	.05	.48		.52							3.15		
Lycippus.	Allegheny.						.41				.02		.86	.16			.32				.22				.26							1.84		
Parkers Landing.	do.						T.	.01			.12	T.					.04	.33		T.	.18	.33		T.	.16				T.	T.		2.17		
Pittsburgh.	Ohio.						.35				.15						.35				.10	.15			.12	.06	.08	.02				.03	2.25	
Saegertown.	Allegheny.						.20	.32			.60	.01	.24				.18				.04	.18	.04		.36	.06							.90	
Saltsburg.	do.																.25																5.19	
Skidmore.	Ohio.																.30				.81				.76					.31		1.18		
Somerset.	You'og'ny.				T.		.71				.13	.97					.32				.05	.07	.14		.22							2.73		
Springdale.	Allegheny.						.03				.35						.49				.07	.10	.03		.50					.04		3.20		
Uniontown.	Monongahela.						.12				.85	.13		.40			.20	.60			.40	.72			.18	.30	.30	.18		.06		2.20		
Warren.	Allegheny.						.20				.12						.32				.14	.92	.44		.24	.02								
West Newton.	You'og'ny.																																	
<i>Maryland.</i>																																		
Deer Park.	You'og'ny.						.25	.18	1.76		.45						.15														.17		2.96	
Grantsville.	do.						.40		.16	.05	.31						.10								.90						.10		2.63	
Oakland.	do.						.35	.35			.01	1.14	.02				.12				.02				.36						.26		2.02	
<i>West Virginia.</i>																																		
Bancroft.	G. Kanawha.								.07			.56	.38				.15				.05		.42		.02				.02		.23		1.90	
Beckley.	do.				.10		.42				.25						.70								.68		.20					1.67		
Bens Run.	Ohio.			.32			1.97	.12			.10						.06	.53							.15						.30		3.78	
Bluefield.	G. Kanawha.		.01	.33	.41	.17	.02	.21	.20	.35		.20	.25				.25				.02	.10			.80							2.97		
Brandonville.	Monongahela.			.10								.20	.25	.89			.25					.40			.58							2.84		
Buckhannon.	do.			T.	T.							.20	.06				T.					.20	.20		.58							1.24		
Calro.	L. Kanawha.						.10					.45					.40					.30			.70							1.95		
Central Station.	M'dle Is. Crk.		.01				.19				1.55	.03					.18				.04	.57			.96							3.53		
Charleston.	G. Kanawha.						.25				.95						.64					.55			T.	.10						2.55		
Creston.	L. Kanawha.						.63				.42	T.					.18					.38			.99							2.60		
Cuba.	Sand Creek.						T.	T.			.10	.52					.12					.17	.25		T.							1.16		
Gavis.	Monongahela.						.10	.20	.30								.10	.30				.10	.20	.10	.20	.30						2.00		
Elizabeth.	L. Kanawha.						.12					.78					.50					.22	.10		.25		.01					1.38		
Elkhorn.	Big Sandy.		.45	.35		.11	.14			1.30							.41								.50							3.76		
Elkins.	Monongahela.			T.	.19		.88	.50		.06	.72						.42					.56			.30					.01		3.67		
Eairmont.	do.				.10		.60				.05	.45					.31					.12	.12	.43	.22							3.50		
Flenville.	L. Kanawha.						.55	.20			.20	.65					.16					.45			.22							2.43		
Grafton.	Monongahela.						.35	1.85	.18	.41		.02					.52					.02	.21		1.31							5.02		
Green Sulphur Spgs.	G. Kanawha.		.37	.02	.82	.04		.04	.38	T.		1.12	.33				.46					.08			.37							2.08		
Hinton.	do.						.28	.38			.24		.24												.20							2.02		
Huntington.	Ohio.						.08				T.	1.68					.08								.06							2.82		
Lewisburg.	G. Kanawha.		.08		.02			.78	.79		T.	.08	.07				.24					.29			.47								1.75	
Logan.	Guyandotte.																.31								.65							4.66		
Lost Creek.	Monongahela.			T.	T.		.35	.12	T.	T.	.21	.11					.31															2.07		
Madison.	G. Kanawha.						.05	1.51	.10			.14	1.31				.40						T.	.01	.67					.07		4.23		
Mannington.	do.		.40				.01	.05		.08	.30		.01	1.22			.54						T.	.04	.70</									

TABLE 2.—Daily precipitation for July, 1911. District No. 3—Continued.

Stations.	Watershed.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Ohio—Continued.																																		
Cadiz	Ohio						T.	1.69			1.58	.08					.10	.48		.01	.58	.24		.24	T.	T.				.17		T.	5.17	
Cambridge	Muskingum						3.24				.46	1.05						.25				.13		.29							.05	.04	2.79	
Camp Dennison	Ohio						T.	.06	T.		.17	.91	.86								.10		T.	.31	.19	.10							1.75	
Canal Dover	Muskingum										.33	.07					.25	.23		T.	.34	.08		.32		.45							3.48	
Canton II	do										.54	1.67	.18					.31					.10		.32		.01						2.45	
Cardington	Scioto										.24	.46					.62					.36	.24		.53								2.20	
Chillicothe II	do		10																			.10											4.61	
Cincinnati	Ohio					1.43	1.18	.98			.18	.28											.03	.29	.21								3.12	
Circleville II	Scioto						.22	.03	.80		.30	.66						.21				T.	.72		.12								1.35	
Clarington	Ohio						.25	.15		T.	.51	.12					T.	.45			.01	.03	T.	.02	.25	.36	T.	.10					3.29	
Columbus	Scioto						T.	.01	1.46	T.	.32	.51					.02	.55							.25	.36	T.	.10					2.91	
Coshocton II	Muskingum							.83			.40	.20						.76			.16	.04			.34		.06						1.36	
Dayton II	Great Miami						.11	T.	.16		.12	.69						.02					.07		.19	T.							2.43	
Delaware	Scioto					T.		.08			.34	.96	.01				.15	.07		T.	.08	T.		T.	.64	T.	.10						1.98	
Demos	Ohio						.37				.35	.08						.19			T.	.76		.45		.17		.07					1.77	
Dennison	Muskingum						T.	T.			T.	.54	.02												.10								0.55	
Frankfort	Scioto										.82	.02													.33	.06							2.20	
Garrettsville	Mahoning						T.	.01	T.		.88	.17			.03		.40	.31			T.	.23			.35	T.	T.						2.48	
Granville II	Muskingum										.10	.56	.20					.11					.37	.62		.20		.13					3.31	
Gratiot	do						.43	.58			.10	.56	.20																				2.57	
Green	Ohio						.50	.75	.37	.40	.55	T.																					2.25	
Green Hill	Muskingum						T.				.51	.15	T.												.19	T.	.18						1.28	
Greenville II	Great Miami					T.					.15	T.													.35	.02	.04						0.97	
Hillsboro	Scioto						.24				.43	.19	.11																				3.70	
Ironton	Ohio							2.45	.07		.21	.50					.10	.10									.06						1.82	
Jacksonburg	Great Miami						.20	T.			1.20						.11	T.			.04		T.	.52		.37		.04	.03				2.81	
Kenton	Scioto					.01					.43	1.40													.37		.05						2.83	
Killbuck	Muskingum					.03	.20				1.40	.21					.05	.35				.05	T.		.45	.05							1.27	
Lancaster	Ohio						.15	.06			.60	.06	.02					.11	.02		T.	.05	T.		.20	T.							1.83	
McConnellsville	Muskingum					T.	T.			.02	.33	.74	.08					.02	.25			.01	.37										4.62	
Marietta	Ohio						.22	2.12	.41			.82												.02	.42	.08							3.39	
Marion	Scioto									1.05	.14	.81						.03	.48						.45	.08							4.14	
Millfordon	Muskingum										1.40	.37						.93							.83	.04							2.38	
Milligan	do								.87	T.		.30												.28									1.79	
Millport	Ohio						.04				.10	.06													.37		.10						2.60	
Nelle	Muskingum						.35		.75			.35													.37								3.45	
New Alexandria	Ohio						1.70				.20	T.												.60									3.12	
New Berlin	Muskingum									.45	.45	1.05						.12	.15						.40								3.18	
New Waterford	Ohio		15				.10				1.55														.10								1.59	
Ohio State Univ'y	Scioto							.45	T.	.02	.35	.16						.15	.02		.03		.14		.25	.01	.01						2.80	
Pataskala	Muskingum						.36				1.10	.06	.23					.21	.04			.01	.10		T.	.36	.15						0.53	
Peebles II	Ohio						T.	.02	.43			.06																					1.87	
Philo (I)	Muskingum						T.	.19			.40	.48																					2.23	
Piqua II	Great Miami										.83	.26																					3.01	
Plattsburg	do						.22	.05			T.	1.05						.05															1.75	
Portsmouth II	Ohio						.06	.65	.68	.03	.15	.45	T.												.66		.05						2.15	
Prospect II	Scioto																																3.36	
Rittman	Muskingum										.20	.45						.33	.30						.41		.04						2.46	
Shenandoah	do					.34					.80	.11	.08									.07	.04		T.	.41	.21						4.02	
Sidney	Great Miami										1.76	.03						.08	.46						.61	.21							4.10	
Somerset II	Muskingum							.14			.35	.36													.30	.02	.06						1.86	
Springfield	Great Miami		14				.02				.38	10.2	.06					.25	.03						.50	.05							1.24	
Summerfield	Ohio						1.31	.20			.09	.44						.21							.70								3.80	
Syracuse	do						.49				.52	.32																					1.73	
Thurman	do						T.	.62			T.	.42	T.																				1.62	
Urbana	Great Miami					.05		.03		.12	.03	1.11	.30	.20				.04	.14			.04			.57	.05							1.02	
Warren	Mahoning										.75															.44		.02						3.36
Waverly II	Scioto								.62	.32	.25	.02													.17								1.73	
Waynesville	Great Miami						.03	.21			.55																						1.62	
Wooster	Muskingum									T.	1.46	.02	.44	.05				.40	.24														5.36	
Youngstown II	Mahoning										.14	.65	.10													.35	.25							1.90
Zanesville II	Muskingum								.28		.23	.55													.14	.47		.04					2.17	
Virginia.																																		
Big Stone Gap	Tennessee						T.	.20		.28		.60	.15	.20	.50										1.80								4.88	
Blacksburg	Kanawha						T.	.50			.32	.30	1.70	.01																				

Stations.	Watershed.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Alabama—Cont'd.																																	
Guntersville ||	Tennessee.	1.20		.32	T.			.22	.88		.32	.75	1.50	.10	T.	.50				1.12	1.14		.04	.16						.08	.28	8.53	
Madison.	do.	.50	1.75	.35	.05		.15	.10				.31	1.65	.03	T.	.36	1.00			1.05	1.10		1.14	.05					.08	T.	.13	7.08	
Riverton ||	do.		.77				.03				.04	.31	1.65	.03			.05		T.		2.02	.24		.47						T.	.13	5.74	
Scottsboro ||	do.			.80				T.	.10		.60	.15	.57	.80	.03	.35				.72	1.20		.02	.21						.37	.50	6.42	
Tuscumbia ||	do.			.56			.20		.30		1.05		.12			.10	.18				2.10	.40		.05						.04	.50	5.10	
Tennessee.																																	
Ashwood.	Tennessee.		T.	.53				.25	.18	T.		T.	1.43			.30				.25	.45		.15							T.	.10	3.56	
Benton.	do.	T.	.55	.09	.24		.05	.18	.40	.38		T.	1.43			.83				T.	2.38	.04	.33	.80						T.	.20	7.90	
Bird's Bridge ||	do.		.10					1.50				1.01		.53			.59				.71	.20		.26						.03		5.08	
Bluff City ||	do.			.14			1.20	.48				.12	.48				.36				.38			.05	.22					T.		3.43	
Byrdstown.	Cumberland								.10			1.10				.60				.30	.10											2.42	
Carthage ||	do.			.05					T.	T.	1.80	.20	.13			1.57					.82	.15	T.	.10						.08	.21	5.11	
Cedar Hill.	do.	T.	.01					.80	T.			.90			1.25				1.00	1.12		.30								.15	.20	5.71	
Celina ||	do.		.07				.17	.18		.10		.25		.15		1.40					.32	.04		.04								.24	2.96
Center Point.	Tennessee.																				.68	.32		.06	1.80							5.47	
Charleston ||	do.		.04	.09			.10		.20		.06		1.20			.30				.04	.90	.01	.09	.43						.04	1.58	5.40	
Chattanooga.	do.		.01	.05			.04		.01	1.03	.24	.63				1.05				.50	.74									.08	.27		

TABLE 3.—Maximum and minimum temperatures at selected stations for July, 1911. District No. 3, Ohio Valley.

Date.	Pennsylvania.								West Virginia.												Ohio.							
	Greenville.		Pittsburgh.		Charleston.		Elkhorn.		Elkins.		Glenville. §§		Huntington. §§		Morgan-town.		Parkers-burg.		Wheel-ing. §§		Canton. §§		Cincinnati.		Columbus.		Dayton. §§	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	90	54	89	60	90	60	89	59	87	53	91	53	91	58	87	56	89	62	96	60	93	60	92	68	93	66	97	61
2....	95	62	95	70	98	67	92	62	92	60	99	65	97	64	94	65	97	69	103	62	98	68	97	73	98	73	100	67
3....	98	72	97	73	100	71	94	61	92	62	102	66	101	70	94	67	102	71	103	67	99	71	100	74	101	75	102	68
4....	101	65	100	73	97	72	93	62	92	65	103	66	100	73	98	67	100	72	105	68	95	70	102	76	104	79	107	71
5....	95	66	96	75	96	68	88	60	93	62	100	65	97	68	94	68	95	70	99	69	96	68	96	73	97	75	100	72
6....	97	68	95	78	95	70	88	59	92	60	99	65	92	71	94	.....	97	73	100	71	97	74	92	69	95	77	100	72
7....	91	69	86	73	95	72	87	61	88	64	95	68	93	70	92	67	94	72	94	70	91	71	91	68	89	72	96	70
8....	94	66	89	71	84	72	83	59	85	66	90	67	87	71	90	67	90	71	95	65	94	64	92	70	93	69	96	68
9....	94	68	92	74	90	69	85	61	88	64	94	67	92	69	91	71	93	70	96	69	94	69	94	69	91	70	96	70
10....	89	68	90	78	92	63	89	62	88	66	95	68	94	70	89	70	92	72	96	68	90	71	90	74	91	72	96	73
11....	93	66	89	71	92	72	83	64	80	65	90	68	90	73	87	69	92	70	93	68	90	67	87	69	86	65	92	72
12....	87	62	88	68	90	69	86	64	84	65	91	67	89	66	86	66	90	67	93	66	86	63	91	69	88	67	94	65
13....	82	52	83	64	90	70	87	60	85	62	92	67	86	68	81	63	84	67	89	60	82	55	84	66	82	61	88	57
14....	84	54	83	63	89	63	83	58	83	55	89	59	86	63	84	60	86	62	89	59	83	54	89	64	86	62	93	57
15....	85	53	85	65	88	60	85	50	85	47	91	57	88	59	86	59	90	63	94	59	86	57	90	69	89	65	92	58
16....	87	58	89	65	88	62	83	55	88	52	93	55	86	62	89	66	89	65	93	59	88	56	81	69	84	61	85	63
17....	76	54	75	62	87	65	77	53	77	55	83	64	81	65	78	62	78	64	85	59	74	61	79	62	74	59	83	56
18....	81	43	77	55	81	57	76	50	75	50	85	53	81	58	79	56	80	59	83	53	80	49	81	63	79	57	87	51
19....	83	45	83	59	86	57	83	53	84	50	90	50	85	56	84	54	87	57	89	56	83	54	85	64	85	62	87	63
20....	86	60	84	65	88	65	82	56	88	59	93	63	87	64	86	64	91	68	89	57	85	64	90	71	87	67	93	64
21....	87	52	86	63	88	65	81	55	84	63	91	66	87	70	.....	.....	39	66	90	65	86	58	89	70	89	65	94	64
22....	80	40	76	60	87	64	82	51	79	55	88	62	85	65	81	61	80	61	86	60	79	54	84	63	81	56	88	49
23....	85	40	84	60	89	58	86	50	83	47	89	50	88	55	87	54	86	57	89	52	84	52	88	62	81	60	86	55
24....	81	41	78	61	87	70	82	55	78	63	84	68	83	65	80	67	78	64	83	57	74	62	78	60	74	55	77	62
25....	70	40	71	54	83	55	78	49	70	49	82	51	79	55	71	53	74	56	77	53	73	49	74	56	72	52	78	51
26....	75	36	74	56	76	55	73	48	73	49	79	57	76	55	75	51	75	57	83	51	74	48	75	54	75	52	82	50
27....	80	43	79	56	83	53	75	46	78	47	85	48	83	51	79	52	83	54	85	51	80	46	81	57	81	55	83	47
28....	85	40	84	62	87	57	84	50	84	51	90	51	87	55	85	59	88	57	93	53	87	53	86	58	86	61	90	51
29....	85	42	85	65	86	61	85	53	84	52	90	65	83	62	86	60	87	63	90	54	87	57	81	66	81	66	82	62
30....	86	56	84	65	87	65	86	60	79	60	88	63	87	67	81	60	86	67	85	57	85	56	84	66	84	64	89	62
31....	90	54	90	65	89	66	87	61	88	56	94	61	89	65	88	64	91	66	97	61	93	59	89	66	91	67	94	61
Mns..	86.8	54.5	85.7	65.1	89.0	64.3	84.3	56.4	84.1	57.2	91.1	61.1	88.1	64.0	85.9	62.0	88.2	64.9	91.4	60.6	86.6	60.0	87.3	66.5	86.7	64.7	91.2	61.7

Date.	Ohio.				Virginia.				Asheville, N. C.		Decatur, Ala. §§		Chattanooga.		Johnson City. §§		Knoxville.		Nashville.		Palmetto.		Sparta.		Waynesboro.		Beattyville, Ky. §§	
	Marion.		Waverly. §§		Big Stone Gap.		Wytheville		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	96	59	90	58	87	57	87	54	83	63	91	66	93	68	96	61	92	67	91	68	90	68	92	60	90	61	92	55
2....	102	65	95	65	90	61	89	57	89	64	96	65	94	72	100	66	95	70	95	70	93	70	95	64	95	60	98	59
3....	105	67	99	65	91	67	93	62	89	63	99	72	96	71	95	70	97	71	97	75	97	71	98	68	90	68	99	65
4....	100	70	98	68	90	67	89	63	86	63	96	77	93	71	86	65	90	69	95	73	94	73	95	69	96	70	97	66
5....	102	72	94	68	88	63	85	60	83	65	92	68	88	68	96	62	89	68	90	70	89	67	95	66	88	68	97	62
6....	98	73	94	68	83	66	86	59	86	61	90	68	90	69	98	64	90	70	90	72	89	68	92	69	86	67	98	65
7....	95	67	91	68	87	65	90	62	84	62	90	69	90	70	93	67	91	70	90	70	89	69	92	68	87	66	98	65
8....	96	66	90	69	81	68	85	65	83	66	91	69	84	70	94	67	84	70	90	74	89	68	85	69	90	66	94	65
9....	92	68	88	68	83	65	84	64	82	66	88	69	89	67	95	66	88	69	87	71	87	68	89	66	82	69	95	65
10....	94	71	90	70	83	66	83	64	86	67	90	70	87	70	88	65	86	71	86	70	87	66	90	67	86	68	97	64
11....	95	66	86	69	83	68	85	66	83	66	91	70	88	69	91	67	86	71	89	73	91	69	85	67	89	66	92	65
12....	89	62	91	66	83	65	84	67	85	65	91	70	86	68	93	67	91	72	88	72	90	71	90	70	90	70	95	66
13....	88	55	84	61	85	64	86	62	87	63	91	71	93	69	91	65	94	70	90	69	93	69	91	67	91	69	90	66
14....	88	52	85	56	81	61	81	58	82	62	91	68	86	68	88	63	87	67	90	70	89	64	80	65	90	70	91	58
15....	90	56	91	59	83	56	84	54	79	63	90	71	90	69	84	60	89	64	91	68	92	66	90	63	89	67	95	54
16....	87	63	88	59	80	56	81	52	80	56	82	70	81	66	91	60	84	66	75	64	81	66	84	65	91	66	85	56
17....	77	58	80	63	76	63	76	57	76	63	84	64	82	67	84	66	81	64	81	65	80	65	81	65	92	62	84	59
18....	85	49	82	52	74	55	74	52	75	59	82	62	79	62	78	58	80	62	83	63	83	60	85	58	86	59	87	51
19....	83	60	88																									

TABLE 3.—Maximum and minimum temperature at selected stations for July, 1911. District No. 3, Ohio Valley—Continued.

Date.	Kentucky.														Indiana.														Philo, Ill.	
	Bowling Green. §§		Earling-ton. §§		Greens-burg. §§		Lexington.		Louisville.		Mays-ville. §§		Williams-burg. §§		Butler-ville.		Evansville.		Indianap-olis.		Kokomo.		Rockville.		Worthing-ton.					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1....	95	61	100	62	89	58	88	67	93	68	95	58	92	58	94	60	92	72	94	71	95	63	93	68	91	65	97	65		
2....	101	65	103	65	92	60	95	71	99	73	101	61	97	.....	99	67	96	74	97	76	100	69	95	70	94	70	98	67	
3....	101	70	105	70	97	65	98	75	104	76	105	68	99	.....	103	70	101	76	100	77	100	69	97	73	97	72	101	69	
4....	99	70	103	75	93	66	98	70	102	76	105	68	98	.....	103	72	99	80	103	78	101	69	99	72	98	72	103	71	
5....	98	68	101	72	92	65	92	68	97	72	100	65	93	67	97	73	95	75	96	74	98	73	96	76	94	75	101	72		
6....	96	69	100	72	94	67	90	71	95	77	98	69	94	68	97	74	94	75	94	74	91	74	95	73	94	73	95	71		
7....	100	68	100	68	95	66	89	72	95	74	96	68	94	67	93	68	95	77	89	72	92	70	96	69	95	70	99	67		
8....	102	68	99	67	94	67	90	70	96	72	93	68	94	67	94	73	90	76	92	70	94	66	96	70	93	71	95	68		
9....	90	69	98	73	85	64	88	68	93	72	93	66	93	64	93	70	93	76	91	73	93	71	98	72	93	72	96	70		
10....	96	67	99	72	91	65	90	69	92	73	95	68	92	64	93	70	90	75	90	70	88	70	95	73	90	73	92	73		
11....	92	67	94	70	87	65	84	69	95	72	89	68	93	68	94	69	92	74	91	71	92	69	97	70	91	71	99	66		
12....	97	68	99	71	91	67	91	69	93	72	94	65	88	66	94	67	93	72	86	67	80	63	86	67	91	68	84	66		
13....	90	66	93	69	86	65	84	67	86	68	88	65	93	58	90	59	86	70	85	61	82	52	87	60	87	58	84	57		
14....	93	63	96	60	90	58	86	66	90	68	91	57	88	66	92	57	89	68	87	65	82	57	91	59	88	60	89	57		
15....	96	61	100	59	93	58	91	65	93	68	95	60	91	58	94	56	92	69	90	65	90	53	97	57	92	60	94	55		
16....	80	62	80	68	90	58	82	64	80	67	90	62	87	65	87	64	78	67	79	62	82	63	86	67	80	66	82	65		
17....	84	62	84	56	80	56	79	62	80	64	84	63	82	58	88	60	79	59	78	58	76	51	79	55	77	56	80	53		
18....	90	60	90	58	84	58	82	61	86	64	90	55	84	54	86	54	87	62	82	60	82	53	86	56	83	55	85	50		
19....	90	60	96	65	88	54	85	62	88	65	90	54	81	54	85	64	88	70	77	66	74	61	80	68	81	61	77	67		
20....	86	62	88	70	83	58	80	69	85	71	94	58	81	64	93	63	84	72	87	67	84	60	91	65	87	63	88	60		
21....	87	67	91	71	89	64	86	68	88	72	92	65	90	66	92	64	89	71	88	65	87	62	93	65	87	68	89	61		
22....	87	68	94	68	84	63	83	64	84	67	90	56	91	64	88	50	86	68	83	60	69	48	89	55	84	56	86	50		
23....	86	57	84	60	90	52	85	62	86	60	93	53	89	58	87	57	82	68	82	63	76	56	79	61	81	58	79	59		
24....	82	60	81	64	88	56	78	61	78	63	81	65	81	55	78	63	78	63	74	57	74	53	76	59	78	60	78	55		
25....	82	51	82	49	77	45	75	53	77	55	79	48	80	50	78	49	79	59	71	51	70	46	74	50	76	50	75	48		
26....	80	52	84	48	79	49	75	53	77	57	80	49	87	50	78	48	78	56	75	51	74	45	75	48	77	48	78	46		
27....	87	52	93	49	83	46	82	57	84	58	87	50	89	47	84	47	83	58	80	57	66	48	80	53	84	50	86	49		
28....	88	54	93	55	88	48	85	63	89	60	93	50	89	50	88	59	86	63	84	61	84	50	84	58	88	54	87	58		
29....	90	58	75	67	78	52	78	65	74	69	85	52	89	57	83	66	75	67	73	66	77	62	73	65	79	67	85	67		
30....	89	60	88	64	90	63	86	66	85	68	92	63	86	61	84	66	84	68	84	64	83	61	78	67	82	68	84	67		
31....	84	65	89	68	87	64	84	68	89	68	92	62	85	60	92	64	87	70	86	67	86	62	84	65	79	64	88	64		
Mns..	90.9	65.6	93.0	64.7	88.0	59.5	85.7	65.6	88.8	68.0	91.9	60.6	89.4	60.1 ^a	90.4	62.7	87.7	69.4	86.1	65.8	84.6	60.3	87.9	64.1	86.8	63.7	88.8	61.7		

^a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.^b Data are from standard instruments not supplied by the U. S. Weather Bureau.^c Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR JULY, 1911.

DISTRICT No. 4, LAKE REGION.

Prof. HENRY J. Cox, District Editor.

GENERAL SUMMARY.

The month of July, 1911, in district No. 4, was marked by periods of weather sharply in contrast. The excessive heat and dryness of the first decade were followed by nearly a fortnight of decided coolness and comparatively frequent showers, with a return during the closing days of the month to warm, dry conditions, especially over the middle and southern sections. On the whole, while the combined effect of these periods was to produce monthly means of temperature and precipitation not far from the normal values, yet the abnormal conditions of each were so pronounced that throughout the entire period there was very little seasonable weather in any portion of the district. The heat of the first 11 days was unprecedented; and, following as it did the prolonged warmth of May and June with only a few short intervals of cool weather, resulted in numerous cases of prostration, mounting in the larger cities into the hundreds. In many places the suffering was intensified by inability to secure ice, the supply being entirely insufficient to meet the enormously increased demand.

The lack of general rains during the early part of the month resulted in many localities in considerable injury to vegetation, and the droughty conditions of the previous months were increased still further. The extreme dryness in several sections was favorable to the outbreak and spread of forest fires, and the destruction of property in the northern portion of lower Michigan as a result of such conflagrations was very heavy.

Clear days with bright sunshine were general throughout the month, there being an average of more than 15 in nearly all parts of the Lake region, while the number of cloudy days was remarkably small. In the upper Michigan Peninsula there were eight cloudy days, but in the remaining portions of the district the average was only from three to five. Over the sections lying between Lakes Superior and Michigan rain fell on an average of 11 days, but the frequency of precipitation was considerably less elsewhere, the number falling to an average of six over lower Michigan and northern Indiana. The prevailing winds were south to west.

The following table summarizes the chief features of meteorological interest in the various portions of the district:

Portions of States lying within district No. 4.	Mean temperature.	Departure from normal.	Mean precipitation.	Departure from normal.	Greatest 24-hour precipitation.	Mean number of days—				Prevailing wind direction.
						Precipitation.	Clear.	Partly cloudy.	Cloudy.	
Minnesota.....	64.3	-0.4	4.78	-0.03	2.65	9	13	14	4	w.
Wisconsin.....	70.0	+1.4	2.82	-1.47	2.30	10	17	10	4	sw.
Illinois.....	76.0	+3.6	2.11	-0.80	0.91	11	15	13	3	sw.
Indiana.....	73.9	0.0	2.48	-1.10	1.65	6	18	8	5	sw.
Upper Michigan.....	65.3	+1.4	5.87	+2.34	2.84	12	14	9	8	w.
Lower Michigan.....	71.4	+1.6	1.73	-1.51	2.25	6	18	8	5	sw.
Ohio.....	73.7	+0.7	2.06	-1.78	2.34	7	18	9	4	sw.
Pennsylvania.....	72.8	+1.0	2.14	-1.07	1.17	8	13	11	7	s.
New York.....	71.4	+2.5	2.84	-1.22	3.71	8	18	10	3	sw.
Vermont.....	71.3	+2.8	3.13	-1.04	1.75	9	15	11	5	s.

TEMPERATURE.

With the exception of the region around extreme western Lake Superior and a small area in the southern portion of upper Michigan, where there was a slight deficiency, the mean temperature of July, 1911, exceeded the normal, the difference amounting to nearly 3° over the New York and Vermont sections, but decreasing southward to approximately zero over northern Indiana.

The month opened with decidedly warm weather, which followed a brief cool period that prevailed during the last few days of June. An area of barometric depression, central over Manitoba on the morning of the 1st, developed into a northeast-southwest trough which moved eastward but slowly, due to the retarding influence of persistent high pressure on the Atlantic coast, and the southerly winds and strong sunshine in its front brought excessively high temperatures to all parts of the Lake region. In fact, while the mean monthly temperatures for the various portions of the district have been exceeded in previous years, the heated period of the first decade of July, 1911, was so anomalistic, both as to intensity and persistence, as to have no parallel within the scope of official record. During the 1st-2d over the northwestern sections, and the 3d-6th over the remainder of the Lake region, maximum temperatures of 100° to 110° were experienced at 125 stations, 90° to 99° at 96 stations, while but two, both lake-shore stations in upper Michigan, recorded maximum readings of less than 90°.

From the 6th to the 8th there was a slight break in the conditions of excessive heat, although temperatures continued generally above the daily normal values, but the 9th-11th marked another period of hot weather of but slightly lesser intensity than the previous one, and due to a somewhat similar distribution of atmospheric pressure.

A strong area of high pressure of great magnitude for the summer season, which had advanced eastward and southeastward from the north Pacific coast, by the morning of the 14th covered practically the whole interior of the country, and the temperatures had fallen to below normal in all sections of the Lake region. From this time until the 28th high pressure dominated the region lying east of the Mississippi River, except for the heavy storm of the 24th-25th and a few minor depressions, and little or no warm weather was experienced during the interval. The closing days of the month, however, were marked by rising temperatures, due to the approach from the west of another trough-shaped depression.

The coolest weather of the month followed just after the passage of the storm mentioned above, and with few exceptions the lowest temperatures of the period occurred during the 25th-27th. The readings of this interval were generally in the forties, and at several stations approached the previous low-temperature records for July, so that the monthly ranges were as a consequence quite large. The absolute range for the district was 79°, from a maximum of 110° at Bay City, Mich., on the 2d, to a minimum of 31° at Stephens Mine, Minn., on the 19th.

PRECIPITATION.

Over the sections to the southward of Lake Superior the amount of precipitation for the month was heavier than for any July rainfall during the previous 10 years, and in portions of the peninsula of Ontario, in the lower St. Lawrence Valley, and at a number of New York stations in the vicinity of Lake Ontario, there was an excess in the amount received for the month. Elsewhere, however, in the district there was a deficiency in rainfall, amounting generally to between 1 and 2 inches.

With the exception of the 9th-10th, the rains of the first two weeks were from local showers, generally scattered, although there were a number of heavy thunderstorms, especially in northeastern New York and the Champlain Valley, where a large amount of damage was done in localities, and in the extreme northwestern sections. The bulk of the rainfall, however, occurred during the latter half of the month. There were two periods of general rainfall during this time, as well as a number of local showers and thunderstorms, but the precipitation was very unevenly distributed in amount.

MISCELLANEOUS.

Severe storms.—As stated above, a number of thunderstorms occurring during the month were of exceptional severity and caused much damage in localities. This was especially the case in northeastern New York State on the 6th, when a series of thunderstorms wrecked many buildings, uprooted trees, and crippled telegraph, telephone, and light and power transmission services. The excessive rainfall of several of the storms of the month in New York is instanced by the following figures:

Place.	Date.	Amount.		Time of fall.
		Inches.	Hrs. min.	
Canton.....	6	0.63	0	10
Do.....	6	1.08	0	25
Oswego.....	17	1.06	0	39
Rochester.....	30	1.80	1	00
Buffalo.....	19	2.40	2	00

In Ohio the period of the 4th-9th marked the passage of several severe thunderstorms across the northern portion of the State, regarding which Prof. J. Warren Smith, section director at Columbus, says:

"On the 4th considerable corn and oats were damaged by hail in Hancock County. Several barns were unroofed and some damage was done to growing crops by a severe thundersquall in Wyandot County on the

5th. On the 6th severe damage was done to live stock, trees, and barns in Allen and Putnam Counties, and a man was struck and partially paralyzed by lightning near Toledo. Orchards were uprooted, wires blown down, and corn and oats badly damaged by high wind in Henry County on the 8th. A barn with contents, valued at \$3,000, was destroyed by lightning in Sandusky County on the 9th. An unusually severe thundersquall passed over the middle counties on the 11th. At Sandusky the wind reached a maximum velocity of 44 miles per hour. During the storm several persons and a number of sheep were killed, several churches were partly wrecked, and a number of barns were destroyed by lightning, while much damage was done to trees, fruit, service wires, and crops by the wind and hail."

The storm of the 23d-24th, however, was general in its character, and was accompanied in practically all portions of the district by the highest wind velocities of the month. The barometric depression which occasioned the high winds of this storm rapidly crossed the northern portion of the Lake region on the 24th and passed down the St. Lawrence Valley during the following day. Widespread damage from wind was reported throughout the district from Marquette, Mich., southward to Indiana and eastward to central New York. Much fruit was blown from the trees, and trees were uprooted or broken off in all sections swept by the storm, the damage in the Ontario fruit belt alone amounting to several thousand dollars. Communication was seriously interrupted and navigation on Lakes Michigan and Huron and the lower Lakes and St. Lawrence River greatly impeded. Several yachts were wrecked and a few of the larger vessels were reported to have lost their deck loads. Taken as a whole, the storm was one of the heaviest blows that have crossed the Lake region in the summer season for many years.

Forest fires.—As a result of the extreme heat and dryness of the first decade of the month, extensive forest fires broke out in the northern portion of lower Michigan. Large areas were burned over, and the towns of Oscoda and Au Sable were destroyed. The loss of property as estimated amounted to about \$1,500,000. The destruction would undoubtedly have been much greater had it not been for the showers which occurred during the latter part of the second and the first part of the third decades, which checked the spread of the flames.

Fires also occurred during the early portion of the month in the Black Mountain region of Vermont and did much damage over several hundred acres of timberland.

Snow was reported to have fallen at Bay City, Mich., and at Grayling, Mich., on the 24th, the amount at the latter place being 1 inch or more.

TABLE 1.—Climatological data for July, 1911. District No. 4, Lake Region.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.					Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.		
Minnesota.																				
Cloquet	Carlton	800	—	64.6	—	97	1	39	21	39	6.14	—	1.99	0	9	14	8	9	sw.	S. B. Detwiler.
Duluth	St. Louis	1,133	40	64.6	— 1.4	92	1	45	16	32	5.83	+ 2.18	2.65	0	14	5	22	4	w.	U. S. Weather Bureau.
Floodwood	do.	1,257	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	nw.	M. H. Schussler.
Stephens Mine	do.	1,500	4	63.7	—	98	1	31	19	43	6.28	—	1.30	0	7	15	14	2	w.	Oliver Iron Mining Co.
Two Harbors	Lake	614	17	63.0	— 0.6	94	2	40	8	42	3.62	— 1.11	0.70	0	8	8	17	6	ne.	G. W. Watts.
Virginia	St. Louis	1,434	17	65.5	+ 0.8	96	1	39	22	39	3.68	— 1.17	1.68	0	10	11	18	2	w.	Oliver Iron Mining Co.
Wisconsin.																				
Appleton	Outagamie	795	10	73.4	+ 3.3	101	2	50	25	33	1.85	— 3.11	0.55	0	11	16	10	5	sw.	Wm. O. Thiede.
Ashland	Ashland	647	20	68.5	+ 0.5	100	1	47	20	35	6.07	+ 2.00	2.04	0	12	18	9	4	w.	Sam Wheeler.
Bayfield	Bayfield	635	2	67.8	—	97	1	49	17	37	5.60	—	2.23	0	10	18	8	5	sw.	John P. Kiel.
Cecil	Shawano	804	13	70.0	+ 1.1	103	2	41	17	50	1.95	— 1.51	0.61	0	7	14	15	2	sw.	Louis W. Schmidt.
Florence	Florence	1,293	20	66.6	+ 1.0	99	2	42	18	35	7.73	+ 3.63	2.30	0	10	19	4	8	sw.	Fred S. Evans.
Fond du Lac	Fond du Lac	800	25	71.7	+ 1.7	97	2	45	26	39	1.12	— 2.41	0.35	0	9	21	6	4	nw.	Geo. W. Marshall.
Grand River Locks	Marquette	770	15	71.3	—	97	2	42	17	39	2.35	— 2.19	0.87	0	8	27	2	2	s.	Jerry Parkinson.
Iron River	Brown	617	25	70.4	+ 2.9	97	2	48	25	30	1.59	— 1.92	0.38	0	14	7	18	6	s.	U. S. Weather Bureau.
Kewaunee	Bayfield	1,096	2	67.2	—	99	1	41	16	40	7.48	—	2.11	0	12	22	3	6	w.	Winfield E. Tripp.
Manitowoc	Kewaunee	590	2	68.8	—	100	2	47	25	32	2.00	—	0.65	0	8	16	6	9	s.	Eugene V. Kimball.
Menasha	Manitowoc	616	60	68.4	+ 0.9	98	2	46	30	31	2.71	— 0.86	0.93	0	10	14	13	4	sw.	Johanna Lups.
Menomonee Falls	Winnebago	764	14	73.0	—	99	2	45	17	36	1.23	— 1.77	0.46	0	8	21	6	4	sw.	Geo. T. Allanson.
Milwaukee	Waukesha	842	2	72.6	+ 2.9	99	3	54	26	30	0.62	— 2.39	0.25	0	8	19	9	3	w.	Arthur H. Christman.
New London	Outagamie	762	15	71.4	+ 1.2	102	2	45	17	37	1.72	— 2.75	0.56	0	9	14	7	10	nw.	U. S. Weather Bureau.
Oconto	Oconto	590	20	69.8	+ 0.8	100	7	47	17	31	3.30	— 0.02	0.69	0	13	14	13	4	w.	August H. Pape.
Oshkosh	Winnebago	744	22	71.8	+ 0.3	100	2	47	17	35	1.34	— 2.74	0.33	0	9	22	9	0	sw.	Wm. K. Smith.
Pine River	Waushara	900	16	70.7	+ 0.7	99	2	45	17	33	2.00	— 2.14	0.42	0	11	11	15	3	sw.	Evan Vincent.
Plum Island	Door	588	3	67.6	—	96	2	40	25	28	4.01	—	1.16	0	16	9	13	9	s.	Geo. H. Carpenter.
Plymouth	Sheboygan	843	1	71.9	—	98	2	48	17	33	1.20	—	0.28	0	9	19	9	3	sw.	Geo. C. Robinson.
Port Washington	Ozaukee	713	18	71.0	+ 2.6	103	2	51	17	34	0.52	— 2.81	0.40	0	2	19	11	1	se.	Paul O. Feldrappe.
Racine	Racine	633	14	72.4	+ 1.2	101	3	48	25	38	0.97	— 2.53	0.23	0	6	23	7	1	se.	Richard C. Kann.
Ripon	Fond du Lac	935	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	se.	Daniel Davis.
Sheboygan	Sheboygan	831	12	71.6	+ 2.1	103	2	51	17	34	0.96	— 2.63	0.39	0	5	14	13	4	se.	Ripon College.
Sturgeon Bay	Door	600	12	66.8	+ 1.2	99	2	42	17	33	2.85	—	1.01	0	12	11	18	2	w.	Louis C. Meyer.
Superior	Douglas	671	2	64.6	—	96	1	48	24	39	7.19	—	2.25	0	10	14	13	4	nw.	Adam N. Dier.
Waupaca	Waupaca	857	16	70.0	— 0.7	102	2	41	17	40	3.14	— 0.34	0.69	0	13	14	10	7	sw.	Edward B. Banks.
Illinois.																				
Chicago	Cook	823	41	76.0	+ 3.6	102	5	53	25	24	2.65	— 0.99	0.91	0	11	15	13	3	sw.	James H. Flagg.
Highland Park	Lake	—	—	—	—	—	—	—	—	—	1.57	— 0.62	0.46	0	—	—	—	—	sw.	U. S. Weather Bureau.
Indiana.																				
Auburn	Dekalb	874	15	70.8	— 1.4	99	4	40	26	34	2.85	— 0.78	0.92	0	7	20	8	3	sw.	Jesse L. Smith.
Berne	Adams	849	2	74.6	—	103	4	48	27	36	2.91	—	1.22	0	7	19	10	2	sw.	Mrs. Josie B. Kuhlman.
Elkhart	Elkhart	801	9	76.5	—	102	4	50	26	31	4.12	—	1.65	0	6	18	10	2	sw.	Henry Reusser.
Fort Wayne	Allen	775	15	73.8	+ 0.3	100	4	40	25	30	2.19	— 1.47	0.85	0	8	13	12	6	sw.	Dr. Miles Medical Co.
Hammond	Lake	598	20	74.0	+ 0.9	104	5	45	25	38	1.50	— 1.27	1.06	0	4	13	10	8	sw.	U. S. Weather Bureau.
Howe	Lagrange	886	6	72.8	—	99	5	46	26	35	2.36	—	1.12	0	4	20	0	11	sw.	Carson W. Whitney.
South Bend	St. Joseph	726	18	73.7	+ 0.3	100	4	48	25	31	2.57	— 0.90	1.05	0	8	20	6	5	sw.	James E. Zook.
Whiting	Lake	606	2	74.8	—	104	4	49	25	33	1.16	—	0.85	0	6	17	9	5	sw.	Henry H. Swalm.
Michigan—Upper Peninsula.																				
Baraga	Baraga	623	9	—	—	101	3	—	—	—	4.00	+ 1.71	1.00	0	4	13	2	16	w.	D. S. S. & A. Ry.
Barland	Ontonagon	1,300	1	65.2	—	100	2	41	16	40	6.54	—	2.28	0	7	19	11	1	s.	Frank McMonigal.
Blaney	Schoolcraft	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Calumet	Houghton	1,246	23	64.4	+ 0.1	96	1	43	24	35	5.26	+ 2.43	1.51	0	12	19	6	6	w.	E. S. Grierson.
Chatham	Alger	875	10	63.2	— 0.1	101	2	35	7	46	8.81	+ 5.33	2.84	0	18	14	10	7	s.	U. P. Experiment Sta.
Deer Park	Luce	610	10	54.7	— 6.9	100	1	43	17	40	4.70	+ 2.02	1.90	0	6	18	2	11	s.	Mrs. Sars E. McGaw.
Detour	Chippewa	585	10	—	—	—	—	45	17	—	—	—	1.30	0	5	12	0	16	nw.	G. C. Reed.
Eagle Harbor	Keweenaw	622	12	63.4	+ 2.2	96	1	44	24	42	2.60	+ 1.76	2.20	0	11	11	12	8	w.	John Nolen.
Escanaba	Delta	612	38	65.5	— 1.0	88	2	46	17	27	6.63	+ 3.29	1.69	0	16	12	12	7	s.	U. S. Weather Bureau.
Ewen	Ontonagon	1,147	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grand Marais	Alger	610	10	65.6	+ 4.2	96	2	41	24	32	5.69	+ 2.99	1.69	0	11	23	5	3	s.	W. B. Hatfield.
Green	Ontonagon	622	0	—	—	100	1	—	—	—	5.84	—	2.05	0	6	12	9	10	s.	Mrs. Lena Truedell.
Houghton	Houghton	668	10	65.8	+ 0.1	98	1	46	23	37	6.17	+ 3.07	2.16	0	11	12	10	9	w.	T. A. Green.
Humboldt	Marquette	1,536	14	65.0	+ 2.9	100	2	40	13	38	3.17	+ 0.25	0.80	0	8	17	4	8	w.	U. S. Weather Bureau.
Iron Mountain	Dickinson	1,111	10	68.6	+ 2.3	103	2	44	17	40	8.21	+ 4.18	2.18	0	12	12	14	5	nw.	D. S. S. & A. Ry.
Iron River	Iron	1,504	14	65.4	+ 1.0	100	2	38	18	42	9.79	+ 4.55	1.30	0	17	15	12	4	nw.	Chapin Mining Co.
Ironwood	Gogebic	1,520	8	66.6	+ 1.0	93	1	46	16	32	6.06	+ 1.14	1.72	0	10	22	5	4	w.	Victor D. Laing.
Ishpeming	Marquette	1,536	11	64.9	+ 0.4	100	2	45	7	36	6.85	+ 2.76	1.50	0	17	8	19	4	sw.	J. V. Brennan.
Isle Royale	Keweenaw	610	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mackinac Island	Mackinac	831	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Maple Ridge	Delta	—	5	64.7	—	100	2	38	17	40	7.50	—	1.50	0	13	18	3	10	s.	Clev'd Cliffs Iron Co.
Marquette	Marquette	734	40	66.4	+ 1.5	104	2	46	24	36	6.76	+ 3.66	2.17	0	15	6	16	9	s.	J. A. Malone.
Menominee	Menominee	581	12	70.0	+ 2.0	100	2	47	25	30	5.90	+ 2.28	2.60	0	13	23	4	4	sw.	M. I. S. P. Comm.
Munising	Alger	631	14	65.7	+ 3.4	101	2	41	17	35	8.44	+ 5.59	2.14	0	15	15	8	8	s.	Herman Johnson.
Newberry	Luce	773	9	65.7	+ 2.0	96	2	38	17	34	4.77	+ 2.05	0.94	0	15	11	10	10	s.	U. S. Weather Bureau.
Powers	Menominee	868	11	65.4	+ 1.5	101	2	38	16	40	—	—	—	—	—	—	—	—	—	—
St. Ignace	Mackinac	59																		

TABLE 1.—Climatological data for July, 1911. District No. 4—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.					Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Michigan—Lower Peninsula—Continued.																				
Arbela.	Tuscola.	728	15	70.9	- 0.1	101	5	46	26†	43	1.32	- 1.87	0.72	0	5	12	14	5	w.	Wm. Atkin.
Battle Creek.	Calhoun.	822	27	72.8	- 0.5	100	5	46	26	34	1.13	- 2.36	0.56	0	5	19	7	5	s.	Elmer E. Sager.
Bay City.	Bay.	593	15	73.6	+ 2.3	110	2	50	17†	35	1.80	- 1.46	1.00	0	4	30	0	1	sw.	Pere Marquette R. R.
Benzonla.	Benzie.	832	15																	Martin S. Joiner.
Berlin.	St. Clair.		22	72.2	+ 2.4	104	5	46	26	41	2.38	- 0.35	0.83	0	9	9	17	5	sw.	R. O. Gould.
Michigan.																				
Big Rapids.	Mecosta.	906	15	70.2	+ 1.7	99	5	44	27	36	1.48	- 2.51	0.40	0	8	26	3	2	sw.	Charlie Gay.
Bloomington.	Van Buren.		7	72.9		105	5	48	17†	35	0.68		0.29	0	4	27	1	3	sw.	John M. Haven.
Cadillac.	Wexford.	1,293	2	70.4		96	3	44	24	33	2.10		0.90	0	6	26	1	4	nw.	Cadillac W. & L. Co.
Cassopolis.	Cass.	903	10																	Michigan Central R. R.
Charlevoix.	Charlevoix.	610	33	69.6	+ 2.0	99	2	44	19	41	2.41	- 0.13	0.65	0	6	16	10	5	nw.	Pere Marquette R. R.
Charlotte.	Eaton.		7			98	5				1.56		0.95	0	4	24	3	4	sw.	City of Charlotte.
Cheboygan.	Cheboygan.	611	21	69.6	+ 2.8	99	2	40	17	41	2.80	- 0.21	1.05	0	9	4	25	2	w.	E. A. Bouchard.
Clinton.	Lenawee.	830	21	72.8	+ 0.2	102	4	45	26	37	1.58	- 1.55	1.22	0	4	21	9	1	sw.	David Woodward.
Coldwater.	Branch.	984	14	73.4	+ 1.4	101	5	46	26	33	1.72	- 3.01	1.00	0	6	25	2	4	s.	L. S. & M. S. Ry.
Concord.	Jackson.		6	72.2		101	5	42	26	37	1.83		0.94	0	4	15	16	0	sw.	W. N. Armstrong.
Croton.	Newaygo.	685	3	71.8		98	5	46	27	33	2.14		1.44	0	7	13	17	1	sw.	G. R. M. P. Co.
Detroit.	Wayne.	730	40	73.6	+ 1.6	100	3	52	26	25	0.79	- 2.69	0.25	0	9	15	11	5	sw.	U. S. Weather Bureau.
Durand.	Shiawassee.	799	4	74.9		104	4	38	28	47				0		14	3	9	sw.	H. J. Tobin.
East Tawas.	Iscos.	590	14	68.9	+ 0.8	100	2	42	18	30	1.55	- 2.44	0.35	0	7	24	6	1	w.	D. & M. Ry.
Eloise.	Wayne.	640	14	74.0	+ 1.2	103	3	51	23	35	1.34	- 2.13	0.97	0	6	19	7	5	sw.	John Gilmore.
Flint.	Genesee.	730	22	70.6	+ 0.7	101	7	48	18	41	0.89	- 1.87	0.50	0	6	18	8	5	w.	William L. Fisher.
Frankfort.	Benzie.	589	7	68.2		92	4	52	17	24	1.53		0.50	0	6	19	0	12	s.	Geo. Morency.
Ganges.	Allegan.	665	2	72.4		95	5	51	17	27	1.49		0.58	0	8	23	4	4	sw.	H. H. Hutchins.
Gaylord.	Otsego.	1,307	6	67.3		95	2†	47	1†	47				0		5	14	12	sw.	Michigan Central R. R.
Gladwin.	Gladwin.	794	15	69.4	+ 0.3	98	11	41	18	43				0		18	4	1	sw.	Geo. R. Smith.
Grand Haven.	Ottawa.	628	30	71.6	+ 1.9	94	4	51	17	26	0.88	- 1.70	0.42	0	7	25	4	2	s.	U. S. Weather Bureau.
Grand Rapids.	Kent.	707	22	73.6	+ 1.0	100	4	51	26	38	1.25	- 1.38	0.58	0	5	17	11	3	w.	Do.
Grape.	Monroe.	625	21	73.0	+ 0.8	100	3	47	26	33	2.73	- 0.15	1.70	0	6	18	10	3	sw.	Joseph W. Morris.
Grass Lake.	Jackson.	980	5	72.4		100	5	45	14	48	1.65		1.05	0	3	23	0	8	sw.	Menzo Conklin.
Grayling.	Crawford.	1,147	21	69.4	+ 1.9	98	2†	40	25†	40	1.56	- 1.60	0.62	0	10	18	9	4	w.	S. N. Insley.
Harbor Beach.	Huron.	635	23	67.2	- 0.7	102	5	40	18	44	1.45	- 0.86	0.60	0	6	26	1	4	s.	Pere Marquette R. R.
Harrison.	Clare.	1,159	18	72.2	+ 3.7	100	3†	47	17	41	0.42	- 2.26	0.42	0	1	27	2	2	w.	Do.
Harrisville.	Alcona.	616	27	68.2	+ 1.4	101	2	46	17	35	1.22	- 1.74	0.37	0	9	11	14	6	se.	D. W. Mitchell.
Hart.	Ocean.	698	19								1.35	- 1.05	0.35	0	6	15	12	4	sw.	Pere Marquette R. R.
Hayes.	Huron.	620	21	71.2	+ 2.5	100	5	50	20†	39	1.70	- 1.02	0.80	0	6	15	12	4	sw.	C. F. Lippard.
Highland.	Oakland.	830	19								2.06	- 1.20	1.34	0	3					A. D. De Garmo.
Hillsdale.	Hillsdale.	1,150	14	72.6	+ 1.2	101	4†	49	18†	36	1.21	- 2.16	1.04	0	6	26	3	2	sw.	C. L. Herron.
Holland.	Ottawa.	610	5	72.5		99	5	47	26	30	1.21		0.58	0	5	22	9	0	sw.	City of Holland.
Howell.	Livingston.	924	19	72.1	+ 1.7	100	5	45	26	38	2.25	- 0.58	1.00	0	5	23	3	5	sw.	Frank Sharp.
Ivan.	Kalamazoo.	927	14	73.8	+ 0.3	103	5	46	26	39	1.16	- 1.21	0.50	0	8	16	12	3	nw.	O. L. Giddings.
Jackson.	St. Clair.	927	14	73.8	+ 0.3	103	5	46	26	39	1.16	- 2.40	0.46	0	5	17	11	3	nw.	City of Jackson.
Jeddo.	St. Clair.	967	22	71.8	+ 2.3	103	5	47	26	36	1.55	- 1.38	0.63	0	7	19	7	5	sw.	William Bice.
Kalamazoo.	Kalamazoo.	955	35																	Kalamazoo Asylum.
Lansing (Agr. College).	Ingham.	820	47	71.3	+ 0.2	99	5	44	26	32	1.04	- 1.63	0.72	0	8	19	7	5	sw.	U. S. Weather Bureau.
Lansing (capitol).	do.	881	24	73.0	+ 1.9	100	5	46	26	32	1.04	- 2.36	0.50	0	7	19	4	8	sw.	State Board of Health.
Lapeer.	Lapeer.	827	12	74.5	+ 3.2	103	5	48	26	34	1.37	- 1.45	0.77	0	4	16	14	1	w.	Michigan Home.
Ludington.	Mason.	586	13	70.6	+ 2.8	98	4	47	17	37	1.58	- 0.92	0.58	0	4	27	3	1	sw.	Pere Marquette R. R.
Luther.	Lake.	1,028	1	69.8		102	5	37	17	38	2.03		0.57	0	10	18	11	2	w.	John W. Nicholson.
Mackinaw.	Cheboygan.	592	15	67.8	+ 0.8	98	2	46	26	35	1.74	- 1.76	0.76	0	6	17	11	3	w.	G. R. & Ind. Ry.
Mancelona.	Antrim.	1,121	15	69.8	+ 2.4	100	2	40	17	45	1.62	- 1.08	1.20	0	4	28	1	2	se.	Do.
Manistee.	Manistee.	600	14	72.7	+ 5.7	99	5	47	16	40	2.60	- 0.67	1.33	0	5	26	2	3	sw.	Pere Marquette R. R.
Midland.	Midland.	604	12	74.6	+ 3.9	103	3	48	25	41				0		21	8	2	se.	Do.
Morenci.	Lenawee.	811	4			96	3†				2.25		1.00	0	7	9	21	1	w.	George J. Tripp.
Mount Clemens.	Macomb.	615	11			106	5				3.19	- 0.45	1.06	0	6	5	21	5	w.	Waterworks.
Mount Pleasant.	Isabella.	826	12			101	4	50	22		0.99	- 1.78	0.56	0	3	23	0	5	w.	Pere Marquette R. R.
Muskegon.	Muskegon.	587	15	73.0	+ 2.8	97	4	52	24	28	0.48	- 3.33	0.30	0	3	26	4	1	sw.	G. R. & Ind. Ry.
Old Mission.	Grand Traverse.	858	17	70.4	+ 2.4	97	2	48	24	32	2.68	+ 0.43	1.00	0	8	13	15	3	sw.	E. O. Ladd.
Olivet.	Eaton.	934	21	71.5	+ 0.9	95	3†	47	26	28	1.26	- 3.09	0.70	0	6	26	0	5	w.	G. A. Knapp.
Omer.	Arenac.	616	12	71.8	+ 4.8	100	5	43	18	45	0.20	- 2.35	0.20	0	1	6	17	8	w.	D. & M. Ry.
Onaway.	Presque Isle.	826	8	68.0	+ 2.0	100	2	34	16	44				0		23	3	5	w.	Do.
Owosso.	Shiawassee.	731	14	73.0	+ 0.5	100	5†	47	26†	33	1.95	- 2.41	0.54	0	8	6	24	0	nw.	Owosso Sugar Co.
Petoskey.	Emmet.	660	21	68.2	+ 1.5	97	9	44	17	34	1.88	- 0.70	0.90	0	8	17	10	4	w.	G. R. & Ind. Ry.
Plymouth.	Wayne.	725	14			107	5													Pere Marquette R. R.
Pontiac.	Oakland.	935	11	74.0	+ 3.5	104	5	49	26	32	1.72	- 1.31	0.96	0	5	24	3	4	w.	Fred W. Shaw.
Port Austin.	Huron.	618	14	73.2		109	3	44	18	47	2.20		1.18	0	6	22	3	6	ne.	Pere Marquette R. R.
Port Huron.	St. Clair.	639	36	71.5	+ 2.5	101	3	49	26	31	1.61	- 1.13	0.70	0	10	13	9	9	sw.	U. S. Weather Bureau.
Reed City.	Osceola.	1,033	14	72.0	+ 3.1	101	3†	45	27	44				0		10	0	21	sw.	Pere Marquette R. R.
Roscommon.	Roscommon.	1,141	7	67.2		99	2†	36	17	44	1.56		0.35	0	9	12	16	3	w.	State Forestry Com.
Saginaw.	Saginaw.	601	9	74.8		102	5	52	18†	33	1.50		0.80	0	5	20	9	2	sw.	Postmaster.
Saginaw, west side.	do.	601	16	74.0	+ 2.2	101	5	50	18	33	1.21	- 2.37	0.39	0	6	21	9	1	sw.	Robert B. Hudson.
St. James.	Charlevoix.	681	5	67.2		93	2	45	17	31	5.47		2.25	0	16	19	2	10	sw.	James Malone.
St. Joseph.	Berrien.	593	24	74.5	+ 2.7	100	4	55	24	23	1.31	- 1.68	0.60	0	8	14	9	8	sw.	City of St. Joseph.
Sandusky.	Sanilac.	790	2	71.0		101	3	45	8	49				0		17	9	5	sw.	Pere Marquette R. R.
Saranac.	Ionla.	639	16	71.8	+ 0.1	103	5	43	27	40	2.94									

TABLE 1.—Climatological data for July, 1911. District No. 4—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Ohio—Continued.																				
Defiance.....	Defiance.....	712	17	72.8	- 0.3	100	4	42	22	40	1.35	- 2.72	0.62	0	10	21	4	6	sw.	John F. Heilshorn.
Findlay.....	Hancock.....	776	22	74.6	+ 0.4	105	4	46	18	40	1.79	- 2.05	0.62	0	7	26	5	0	sw.	Dr. E. A. Moser.
Freemont.....	Sandusky.....	628	9	74.7	.....	102	3†	49	26	35	1.28	.....	0.34	0	7	21	7	3	sw.	E. Stanley Thomas.
Hedges.....	Paulding.....	725	17	72.0	- 1.3	101	3	46	26†	36	1.24	- 2.11	0.54	0	7	19	5	4	nw.	Charles Stutzman.
Hillhouse.....	Lake.....	997	18	71.7	+ 1.1	96	5	47	27	31	2.44	- 2.17	1.55	0	7	19	10	2	w.	J. W. Doncaster.
Hiram.....	Portage.....	1,260	31	73.0	+ 1.9	97	3†	50	26	28	2.65	- 1.08	0.91	0	7	19	7	5	sw.	Prof. G. H. Colton.
Hudson.....	Summit.....	1,153	50	74.8	+ 2.5	103	4	46	26	39	1.21	- 2.96	0.39	0	6	21	10	0	sw.	Dr. W. I. Chamberlain.
Lima.....	Allen.....	875	12	73.3	+ 0.2	98	4	48	22†	35	0.75	- 2.61	0.59	0	4	17	13	1	nw.	Miss Ollie De Long.
Medina.....	Medina.....	944	23	72.6	+ 0.2	102	4	44	27	39	2.75	- 1.62	2.00	0	6	24	5	2	s.	F. W. Clark.
Montpelier.....	Williams.....	880	19	73.4	+ 1.0	100	3†	45	26	37	2.28	- 1.69	1.50	0	4	26	3	2	w.	G. L. Lacer.
Napoleon.....	Henry.....	680	24	73.6	+ 0.6	100	3†	48	26†	36	2.43	- 0.97	0.68	0	10	21	6	4	w.	A. C. Senter.
New Bremen.....	Auglaize.....	1,038	18	73.9	+ 0.3	102	4	47	25	37	1.28	- 1.93	0.40	0	6	12	14	5	sw.	Miss Lillian Grothaus.
North Royalton.....	Cuyahoga.....	1,000	18	72.9	+ 0.5	101	3	48	26	40	2.47	- 1.98	1.08	0	6	17	14	0	w.	W. S. Edgerton.
Norwalk.....	Huron.....	719	25	74.6	+ 1.7	103	4	46	27	40	1.24	- 3.23	0.40	0	4	16	12	3	w.	Dr. Albert Sheldon.
Oberlin.....	Lorain.....	855	36	73.7	+ 1.3	103	4	45	27	38	2.96	- 0.81	1.10	0	6	17	8	6	ne.	Prof. F. F. Jewett.
Ottawa.....	Putnam.....	720	16	73.1	- 0.7	100	4	47	26	34	3.43	- 0.33	1.86	0	7	5	22	4	sw.	Prof. J. T. Maidlow.
Sandusky.....	Erie.....	629	34	74.4	+ 0.8	98	3	53	26	29	2.09	- 1.70	0.74	0	8	15	11	5	sw.	U. S. Weather Bureau.
Tiffin.....	Seneca.....	775	29	74.2	+ 0.6	100	4	51	18†	30	2.72	- 1.23	0.90	0	9	20	9	2	s.	Prof. T. H. Sonnedeker.
Toledo (1).....	Lucas.....	769	40	74.6	+ 0.9	100	3	52	26	24	1.25	- 1.99	0.49	0	9	20	9	2	sw.	U. S. Weather Bureau.
Toledo (2).....	do.....	606	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Krance, S. J.
Upper Sandusky.....	Wyandot.....	854	28	73.2	- 0.6	101	3	48	26†	33	2.62	- 0.96	0.68	0	9	8	15	8	w.	Robert E. Tracht.
Vickery.....	Sandusky.....	588	18	74.2	+ 1.0	102	3	47	27	40	1.77	- 2.39	1.00	0	9	10	18	3	sw.	John W. Barr.
Wauseon.....	Fulton.....	780	39	73.1	+ 0.3	99	4	46	26	37	2.45	- 1.49	0.69	0	10	17	11	3	s.	Thomas Mikesell.
Willoughby.....	Lake.....	649	17	.....	.....	.....	.....	.....	.....	.....	3.56	- 0.02	2.34	0	7	21	3	7	nw.	C. M. Richardson.
Pennsylvania.																				
Erie.....	Erie.....	658	38	72.8	+ 1.0	96	5	53	27	21	2.14	- 1.07	1.17	0	8	13	11	7	s.	U. S. Weather Bureau.
New York.																				
Adams Center.....	Jefferson.....	540	20	71.8	+ 1.9	97	5	50	27	30	3.26	- 1.22	2.64	0	6	22	7	2	s.	A. E. Cooley.
Angelica.....	Allegany.....	1,340	28	68.0	+ 0.4	96	4†	37	27	41	2.04	- 2.16	0.72	0	8	3	20	8	w.	C. P. Arnold.
Appleton.....	Niagara.....	270	20	73.0	+ 3.3	106	5	47	28	36	1.43	- 2.53	0.83	0	6	18	10	3	sw.	H. A. Van Wagoner.
Auburn.....	Cayuga.....	715	42	72.5	+ 2.0	100	5	50	26	32	2.61	- 1.18	1.10	0	8	26	4	1	s.	A. H. Underwood.
Avon.....	Livingston.....	585	16	73.6	+ 2.7	103	5	46	27	35	2.73	- 1.04	1.36	0	7	25	5	1	w.	W. G. Markham.
Blue Mountain Lake.....	Hamilton.....	1,750	11	.....	.....	.....	.....	.....	.....	.....	2.71	- 1.88	0.75	0	7	25	4	2	w.	B. F. Merwin.
Brockport.....	Monroe.....	537	15	74.6	+ 3.4	104	5	50	27	34	1.18	- 3.14	0.76	0	8	14	17	0	sw.	W. H. Lennon.
Buffalo.....	Erie.....	767	60	71.6	+ 1.4	95	5	56	26	24	4.41	+ 1.01	2.91	0	8	14	13	4	sw.	U. S. Weather Bureau.
Canton.....	St. Lawrence.....	448	17	70.8	+ 1.9	98	5	50	27	34	4.88	+ 1.65	2.01	0	10	12	14	5	sw.	Do.
Cape Vincent.....	Jefferson.....	246	6	69.6	.....	92	6	51	27	27	3.18	- 1.72	0	7	16	10	5	s.	V. M. Rice.	
Carvers Falls.....	Washington.....	243	13	70.3	+ 1.4	99	3†	41	25	33	2.37	- 1.18	0.80	0	5	24	5	2	s.	Washburn Fancher, C. E.
Chazy.....	Clinton.....	151	11	74.8	+ 6.0	104	3	48	8	45*	1.80	- 2.26	0.67	0	5	25	4	2	s.	W. R. North.
Dannemora.....	do.....	1,490	6	72.1	.....	96	3†	49	26	33	2.62	- 1.26	0.58	0	12	14	11	6	s.	Dr. W. N. Thayer.
Elba.....	Genesee.....	500	12	71.4	+ 1.8	100	5	47	18	39	1.15	- 3.69	0.70	0	3	23	5	3	sw.	Joseph S. Wilford.
Faust.....	Franklin.....	1,550	0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Santa Clara Lumber Co.
Fayetteville.....	Onondaga.....	530	10	73.4	+ 1.8	103	5	50	21†	35	3.49	- 0.48	1.01	0	10	22	7	2	nw.	D. H. Wells.
Gabriels.....	Franklin.....	1,729	9	66.8	.....	96	3	38	1	42	2.74	- 0.70	0	11	17	10	4	w.	Gabriels Sanatorium.	
Harkness.....	Clinton.....	622	9	73.7	+ 4.7	102	3	48	27	37	1.81	- 1.85	0.50	0	10	24	5	2	w.	J. V. Harkness.
Hemlock Lake.....	Livingston.....	900	13	72.8	+ 1.9	98	5	53	27	29	3.40	- 0.64	1.87	0	6	15	10	6	sw.	D. H. Westbury.
Hunt.....	do.....	1,321	12	72.5	+ 2.4	100	3†	44	27	34	3.71	- 0.85	2.02	0	8	5	24	2	sw.	W. S. Barager.
Ithaca.....	Tompkins.....	928	33	73.4	+ 2.8	102	4	50	27	37	2.53	- 1.22	1.21	0	12	11	15	5	nw.	U. S. Weather Bureau.
Keene Valley.....	Essex.....	1,000	13	71.2	+ 4.2	105	5	40	27	50	2.19	- 1.72	0.47	0	9	20	7	4	s.	E. R. Wells.
King Ferry.....	Cayuga.....	11	.....	.....	.....	.....	.....	.....	.....	.....	2.00	- 2.09	1.03	0	7	24	5	2	w.	L. A. Goodyear.
Lake George.....	Warren.....	350	14	73.4	+ 3.6	102	4	49	26	33	2.52	- 1.79	0.70	0	8	15	12	4	sw.	Charles Forsell.
Lake Placid Club.....	Essex.....	1,864	3	65.8	.....	92	5	40	27	39	3.01	- 1.15	0	13	18	12	1	nw.	Henry Van Hoevenberg.	
Le Roy.....	Genesee.....	920	21	71.8	+ 2.8	99	5	49	27	33	2.86	- 0.33	1.02	0	9	12	10	9	sw.	F. W. Ball.
Lockport.....	Niagara.....	650	24	72.2	+ 1.8	99	3†	50	18†	31	2.81	- 1.01	1.49	0	11	17	8	6	sw.	J. E. Wakeman.
Lowville.....	Lewis.....	900	44	69.3	+ 1.8	97	5	41	27	38	2.34	- 1.37	1.42	0	5	20	9	2	w.	C. E. McBride.
Moir.....	Franklin.....	200	11	72.6	+ 3.6	99	5	46	22†	41	2.00	- 2.38	0.89	0	12	19	10	2	w.	L. W. Brown.
Nehasane.....	Herkimer.....	1,750	3	65.5	.....	95	5	36	27	42	2.79	- 0.93	0	5	20	9	2	se.	State Hospital.	
Ogdensburg.....	St. Lawrence.....	175	27	72.4	+ 2.8	95	5	50	27	37	2.39	- 0.81	1.54	0	6	20	9	2	sw.	Mrs. S. W. Nelson.
Old Forge.....	Herkimer.....	1,733	3	66.0	.....	95	3†	40	27	40	3.01	- 1.42	0	8	21	8	2	w.	U. S. Weather Bureau.	
Oswego.....	Oswego.....	335	41	71.2	+ 1.6	97	5	53	26	29	4.06	+ 0.83	3.71	0	7	17	12	2	.....	William Winke.
Otto.....	Cattaraugus.....	1,410	7	72.0	.....	99	10	47	18	38	2.62	- 1.00	0	5	24	6	1	sw.	E. B. Bartlett.	
Palermo.....	Oswego.....	460	52	.....	.....	.....	.....	.....	.....	.....	3.32	- 0.04	1.00	0	8	12	15	4	nw.	W. H. Jeffers.
Perry City.....	Schuyler.....	1,038	31	70.4	+ 1.6	103	6	43	25†	43	3.29	- 0.94	1.01	0	9	12	15	4	w.	E. D. Babcock.
Philadelphia.....	Jefferson.....	485	5	71.6	.....	95	6	47	27	36	3.77	.....	2.56	0	9	.....	.....	.....	.....	A. E. Sutherland.
Potsdam.....	St. Lawrence.....	300	35	73.5	+ 5.2	101	6	49	27	33	3.33	- 1.01	0.95	0	9	22	6	3	w.	R. J. Dunning.
Raquette Lake.....	Hamilton.....	.....	3	66.6	.....	94	5	41	15	36	2.80	+ 1.26	1.86	0	9	13	14	4	sw.	U. S. Weather Bureau.
Rochester.....	Monroe.....	523	82	73.1	+ 2.7	101	5	52	27	30	4.35	- 1.06	1.81	0	5	15	13	3	sw.	C. H. Lattig.
Shortsville.....	Ontario.....	740	12	72.9	+ 2.7	102	5	51	26	35	3.14	- 1.05	0.93	0	9	.....	.....	.....	.....	Edward Conron.
Skaneateles.....	Onondaga.....	.....	16	.....	.....	.....	.....	.....	.....	.....	3.02	- 0.62	1.53	0	11	16	13	2	s.	U. S. Weather Bureau.
Syracuse.....	do.....	597	9	72.8	+ 2.0	100	5	52	27	29	3.06	- 2.56	0.44	0	6	19	7	5	s.	Miss Eva M. De Lano.
Ticonderoga.....	Essex.....	344	13	74.0	+ 3.3	101	3	49	1	31	1.10	-								

TABLE 2.—Daily precipitation for July, 1911. District No. 4, Lake region.

Stations.	Watersheds.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Minnesota.																																	
Cloquet.	Lake.				.69	.34									.11	T.		T.		.43				1.99	.04	.06						.94	6.14
Duluth.	do.		.04	.02	.57	.24			T.	T.		.01			.15			T.		.34			.26	2.39	.02	.03		T.	.84	.56	.36	5.83	
Floodwood.	do.				.47	.13								.08						.63				2.25	.13			1.09		1.50	.62	6.28	
Stephens Mine.	do.				T.	.30				T.										.50	.09			1.30		.20		1.00		.23	.32	6.02	
Two Harbors.	do.				.25	.70									.50					.15				.08					.50	.70	.28	3.16	
Virginia.	do.				T.	.18											.12			.21	.25			1.68	.07	.08		.01	.76		.32	3.68	
Wisconsin.																																	
Appleton.	Fox.					.01				.25	.07				.40	.22		.01	.20				.55						.05	.07	.02	1.85	
Ashland.	Lake.		.94	.11	.40	2.04								.15	.09					.30			1.43	.10					.20	T.	.04	.27	6.07
Bayfield.	do.		.20		.65	1.23			T.	T.			T.	.15	T.					.25	T.		2.23	.27					.20	T.	.25	.17	5.60
Cecil.	Fox.					.16				.61	.21		T.	T.	.16	T.		.28	.31			T.							.22			1.95	
Florence.	Menominee.				.45	1.02				.39					.29					.51	.31			1.75				.47		.24	2.30	7.73	
Fond du Lac.	Fox.				T.	.66				.20	.05				.35		T.		.05				.08	.20	T.				.05	T.	.08	1.12	
Grand River Locks.	do.					.87				.50	T.				.12		.10		T.	.10	.04		.38	.08				.20			2.35		
Green Bay.	Lake.					.05				.16			T.		.01	.37		.11	.11	.04		.34	.16	.01				.01	.11	.02	.09	1.59	
Iron River.	do.			.04	2.11	1.79	.03								.10	.16		T.	.03		.45		1.48	T.	.12	T.	T.		.35	T.	T.	.82	7.48
Kewaunee.	do.					T.				.40					.65					.11			.58	.20	.01			.03	.02			2.00	
Manitowoc.	do.					.93				.33					.02	.37			.20				.62	.18	.04				.01	.01	T.	2.71	
Menasha.	Fox.					T.				.18					.17	T.	T.	T.	.22	.05			.44	T.	T.			.06	.15		.46	1.72	
Menomonee Falls.	Lake.			.10			.12			.04	T.				.06	.11							.13	.67							T.	1.23	
Milwaukee.	do.			.18		T.				.01					.09	.01				.01			.25	.05	.02				T.		T.	.02	1.62
New London.	Fox.				.03	.10				.27					.25	T.		.16			.10		.56	</									

TABLE 2.—Daily precipitation for July, 1911. District No. 4—Continued.

Stations.	River basins.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Michigan—Lower Peninsula—Contd.																																		
Berlin.....	Clinton.....				.10	T.				.53			.02		T.	.83	.01		.74	.01			T.	.11		.03			T.			2.38		
Big Rapids.....	Muskegon.....				.40					.03			.02			.31			.39					.06	.19							1.48		
Bloomington.....	Lake.....										T.					.02	.26						.29	.11								0.68		
Cadillac.....	Manistee.....				.90					.20						.30			.20					.40	.10							2.10		
Cassopolis.....	St. Joseph.....																															2.41		
Charlevoix.....	Lake.....								.18							.20	.05						T.	.65	.80							1.56		
Charlotte.....	Kalamazoo.....				.44																		.05	.12								2.80		
Cheboygan.....	Cheboygan.....									.05						.20	.05		T.	.56			.14	.05	.25	1.05	T.			.10	.40	1.58		
Clinton.....	Raisin.....															1.22	.07		T.				.06	.23	T.							1.72		
Coldwater.....	St. Joseph.....															1.00							.10	.30	.04							1.83		
Concord.....	Kalamazoo.....															.55			.94			T.		.24	.10							2.14		
Croton.....	Muskegon.....				1.44											.12	.21		.12					.05	.16	.04							0.79	
Detroit.....	Detroit.....									.95						.04	.21	.04	.02					.20	.01	.12				.10				
Durand.....	Saginaw.....				.10											.05	.06		.02														1.55	
East Tawas.....	Lake.....			.35		.10									.25				.10	.35				.30	.10								1.34	
Eloise.....	Rouge.....									.03				T.		.97	.03						T.	.25	.05	.01							0.89	
Flint.....	Saginaw.....															.38	.50	.10	.05					.50	.08	.10							1.53	
Frankfort.....	Betsie.....				.10					.10						.06	.58			.22				.24	.09	.03							1.49	
Ganges.....	Lake.....				.23																													
Gaylord.....	Cheboygan.....																																	
Gladwin.....	Saginaw.....															.10			.20					.15									0.88	
Grand Haven.....	Grand.....				.12					.05						.08	.02		.09					.42	.10			T.					1.25	
Grand Rapids.....	do.....				T.	.58				T.						.10			.12					.27	.18								2.73	
Grape.....	Raisin.....										1.70					.26	.14		T.					.02	.40	.21							1.65	
Grass Lake.....	Grand.....															.35			1.05					.25	T.							1.56		
Grayling.....	Au Sable.....									.01					.04	.20	.05		T.	.21	.05			.10	.62	.13				.15			1.45	
Harbor Beach.....	Lake.....				.60					.10							.35			.05				.20		.15							0.42	
Harrison.....	Saginaw.....																	.42															1.22	
Harrisville.....	Lake.....				T.	.05								.02	T.	.15		.26	.37				.05	.20	.07				.05	T.			1.33	
Hart.....	Pentwater.....									.30						.05	.32		.28					.35	.03								1.70	
Hayes.....	Pigeon.....			.12		.30										.30			.80					.11	.07								2.06	
Highland.....	Huron.....															1.34			.66					.06									1.81	
Hillsdale.....	St. Joseph.....															1.04			.14	.07			.31	.17	.08								1.21	
Holland.....	Lake.....				.58					T.						T.	.10		.25					.12	.16								2.25	
Howell.....	Saginaw.....				.15											.90			1.00					.10	.10								1.53	
Ivan.....	Manistee.....				T.	.08								.02	.32	.04		T.	.29			T.	T.		.50	.16				.12			1.16	
Jackson.....	Grand.....															.38			.46					.05	.23	.04							1.55	
Jeddo.....	St. Clair.....				.10					.08						.12	.63	.12		.35				T.	.15									
Kalamazoo.....	Kalamazoo.....															.25	.35		.11					.10	.10	.01							1.65	
Lansing (Agr. Col.).....	Grand.....				.72					.01						.03	.50		.05					.06	.11								1.04	
Lansing (capitol).....	do.....				.28					.01						.11	.32		.77						.17								1.37	
Lapeer.....	Saginaw.....																	.57						.33									1.58	
Ludington.....	Pere Marquette.....									.10				T.		.06	.17		T.	.50		.01		.33	.41	.04				.03			2.03	
Luther.....	Manistee.....				.57					.16					T.	.10			.10						.10								1.74	
Mackinaw.....	Lake.....									.35					T.	.02			T.	.76	.03			.10	.20	.30			T.				1.62	
Mancelona.....	do.....				T.											.40								.60	.15								2.60	
Manistee.....	Manistee.....				1.33																												2.25	
Midland.....	Saginaw.....									.30	.15					1.00	.25		.13					.30	.12								3.19	
Morenci.....	Maumee.....															.97	.87		1.06					.16	.12	T.			.01				0.99	
Mount Clemens.....	Clinton.....				T.											.56	.23								.03								0.48	
Mount Pleasant.....	Saginaw.....				.20																												2.68	
Muskegon.....	Muskegon.....				.15					.30						.26	.05		.21					.41	.00	.09							1.26	
Old Mission.....	Lake.....				.51					.15						.27			.70					.10	.06	T.							0.20	
Olivet.....	Kalamazoo.....				.12					.01														.20									1.95	
Omer.....	Lake.....																																1.88	
Onaway.....	Cheboygan.....									.10	.08					.09	.54	.13		.49				.12	.01									
Owosso.....	Saginaw.....				.39					.08						.10				.08				.19	.90	.21			.02					
Petoskey.....	Lake.....				T.														1.25															
Plymouth.....	Rouge.....																		.96	.04				.12	.25								1.72	
Pontiac.....	Clinton.....				T.										T.				.35					.39	.02								2.20	
Port Austin.....	Lake.....				.24											.02	.35		1.18					.04	.01	T.				.01			1.61	
Port Huron.....	St. Clair.....				.03	.01				.70						.18	.46	.02		.15														
Reed City.....	Muskegon.....																																1.56	
Roscommon.....	Au Sable.....				.25					.01					.01	.03	.30		T.	.30				.01	.30	.35							1.50	
Saginaw.....	Saginaw.....				.80					.10						.10	.39		T.	.10				.15									1.21	
Saginaw West Side.....	do.....				.33					.01					T.	.39			.19					.19									5.47	
St. James.....	Lake.....				.05					.27																								

TABLE 2.—Daily precipitation for July, 1911. District No. 4—Continued.

Stations.	River basins.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Ohio—Continued.																																		
North Royalton	Lake						.47				1.08						.08	.18							.38							.28	2.47	
Norwalk †	do.										T.	.24	.36					.40			T.				.24								1.24	
Oberlin	do.										1.10	.08					.67				T.	.69			T.	T.				.25			2.96	
Ottawa	Maumee						.60				.65	1.86					.18							.06	.63					.05			3.43	
Sandusky	Lake										.74	.47					.65	.04			.01		.01		.16	T.	.01					T.	2.09	
Tiffin	Sandusky				.07		.05				.52	.90	.49				.23	.07			T.				.19	.20	T.						2.72	
Toledo (1)	Lake						.28				.16	.34					.22	.01			.05			.16	.01	.02							1.25	
Toledo (2)	do.																																	
Upper Sandusky	Sandusky				T.						T.	.33	.68				.06	.55	T.		T.	.25			.35	.06					.11	.03	2.62	
Vickery	Lake										.01		.44				.76	.24			.06				.03	.15	.03					T.		1.77
Wauseon †	Maumee										.69	.03	.12	.19			.01	.61			T.	.29			.37	.03	.11					T.	T.	2.45
Willoughby †	Lake										.84	.01					.14	2.20					.11		.24	.02							3.56	
Pennsylvania.																																		
Erie	Lake						T.				T.	.21			.01		T.	.44	.73		.26	.18	T.		T.	.10	T.	.21			T.		2.14	
New York.																																		
Adams Center	L. Ontario							T.				T.				.11	T.	2.64				.24			.10	.09					.08		3.26	
Angelica	Genesee					.08						.02						.72				.45		.30	.13		.05				.29		2.04	
Appleton	L. Ontario	T.					T.				T.	.25				.10	.16	.83			T.				.03						T.	T.	1.43	
Auburn	Oswego										.22	T.					.30	1.10				.25	T.			.45					.05	.04	2.61	
Avon	Genesee										.17						.10	1.36							.21	.05	.26						2.73	
Blue Mountain Lake	Raquette					.14					.75					.23	.27	.48				.58			.47							T.	2.71	
Brockport	L. Ontario										.02			.05		.07	.76				.16	.08		.03			.01	.37					1.18	
Buffalo	Lake Erie	T.					.24				.05	T.		T.	T.	.02	.70	.42			.41	2.50		T.	.07	T.					T.		4.41	
Canton	Grass		.18	.06			1.95							T.		.14	.68	1.56			.03	.01			.20	.07							4.88	
Cape Vincent	St. Lawrence										.04			.19		.18		1.72	.22		.29				.54								3.18	
Carvers Falls	L. Champlain						.42										.80				.13										.30	.72	2.37	
Chazy	do.						.05							T.			.65	.67	.08						.35								1.80	
Dannemora	do.		.08				.53	.58							T.	T.	.12	.45	.10	.41		.01			.05	.15	.02				.12		2.62	
Elba	L. Ontario														T.	T.	T.	.70				.42	.03			.15	T.						1.15	
Faust	Raquette																																	
Payetteville	Oswego										T.	.60	T.				.51	1.01	.06		.11	T.	.07	.02	.16		.61				.34		3.49	
Gabriels	St. Regis		.70				.69								.02	.03	.62	.30			.07				.09	.10	.11				.01		2.74	
Harkness	L. Champlain	.07					.03	.05							.03	.50	.25	.14							.22	.05					.47		1.81	
Hemlock Lake	Genesee					.35					.39						1.23	.64			.48			.31									3.40	
Horse Shoe	St. Lawrence																																	
Hunt	Genesee						.83					.20					2.02				.30	.13		.02			.11				.10		3.71	
Ithaca	Oswego					.51	.02				.07	.01			T.		.31	.93			.01	.39	.06	T.	.18					.02	.02		2.53	
Keene Valley	Ausable		.21				T.	.05							.25	.47	.14	.32			T.			.05	.47					T.	.09	.14	2.19	
King Ferry	Oswego						.09				T.	.02						1.03			.34	.33			.08						.11		2.00	
Lake George	L. Champlain						T.									.42	.09	.11	.31		.25			.43					.21	.70		2.52		
Lake Placid Club	Ausable, W. Branch	.28						.06				T.		T.		.14	.05	.35	1.15		.46			.03	.20	T.	.05	.09	.05	.10		T.	3.01	
Le Roy	Genesee						.02					T.				.11	1.02	.71		T.	.64	.02			.06	.24	.04						2.86	
Lockport	L. Ontario						T.					.03		.03		.08	.14	.49			.04	.17	.78		.01	.01	T.			.03			2.81	
Lowville	Black													T.	.18		.42				.22				.32	.20							2.34	
Moir	St. Lawrence	.34					.62							.11			.89	T.					.04										2.00	
Nehasane	Black	.03					.60						.03			.09	.12	.93	.18		.11		.01		.34	.34	.01						2.79	
Ogdensburg	St. Lawrence						T.						.05			.18	.30	1.54			T.	.07			.30	.25							2.39	
Old Forge	Black										.80					.11		1.42	.06		.10		.02		.47	.03							3.01	
Oswego	L. Ontario						.08				.08			T.	T.	.02	.30	3.41			.09	.04			.12						T.		4.06	
Otto	Lake Erie						.45										.93	1.00						.10	T.			.14					2.62	
Palermo	L. Ontario	T.									1.00				.51	.60	.90	.05			.10				.06	.10				T.			3.32	
Perry City	Oswego					.12	.08				.33	.11					1.01				.96	.19			.19						.30		3.29	
Philadelphia	St. Lawrence						.01							T.		.11		2.56	.31		.23				.15	.37					.03		3.77	
Potsdam †	Raquette		.41				.95								.15		.66	.85			.05			.04		.20	.02						3.33	
Raquette Lake	do.						.42									.14	.98	.44			T.		.04		.46	.08				.15			2.80	
Rochester	Genesee									T.	T.	T.			T.	.04	.62	1.02			.24	.19	.09	T.	.15	.14				T.	1.86	4.35		
Scottsville	do.									.15				.05		.22	1.23		1.45					.12									3.32	
Shortsville	do.						T.					.54					T.	1.81			.38	T.			.35	T.	.06						3.14	
Skaneateles	do.						T.				.24	.15			T.		.82	.74				.53			.35		.27	T.			T.	.02	3.02	
Syracuse	do.										.22	.53					.82	.74				.02	.05	.01	T.	.20	.03	.26				.18	3.06	
Ticonderoga	L. Champlain	T.				.15									.02	.01	.44	T.			T.			.10	T.					T.	.38		1.10	
Volusia	Lake Erie										.04						1.16				2.00				.02	.01	.04						3.27	
Wanakana	Oswegatchie		.08	</																														

TABLE 3.—Maximum and minimum temperatures at selected stations for July, 1911. District No. 4, Lake Region.

Date.	Duluth, Minn.		Wisconsin.						Chicago, Ill.		Fort Wayne, Ind.		Michigan.												Battle Creek.		Cadillac.	
			Florence.		Green Bay.		Milwaukee.						Escanaba.		Ewen.		Houghton.		Marquette.		Sault Ste. Marie.		Alpena.					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	92	66	98	64	95	72	95	73	96	75	93	68	84	67	.....	.....	98	70	101	69	92	57	98	64	94	65	93	70
2....	88	63	99	70	97	76	98	77	98	79	97	72	88	70	.....	.....	88	64	104	68	97	62	101	73	96	70	95	71
3....	87	63	89	63	85	72	99	69	100	77	99	75	84	64	.....	.....	84	64	79	63	75	58	92	70	98	73	96	74
4....	72	52	81	60	83	67	94	68	102	78	100	74	76	66	.....	.....	78	64	76	60	81	55	78	63	99	70	94	75
5....	88	56	86	65	84	71	96	74	102	82	98	75	80	66	.....	.....	86	59	89	56	82	61	86	68	100	74	96	74
6....	71	53	80	60	79	60	78	66	87	72	90	74	72	59	.....	.....	72	54	64	53	64	50	79	60	92	71	95	62
7....	64	54	81	46	80	57	76	64	80	72	86	67	71	49	.....	.....	74	52	67	50	78	48	71	55	87	64	80	53
8....	83	55	91	58	94	64	82	69	90	74	94	68	79	67	.....	.....	95	58	94	62	83	56	75	55	95	64	90	63
9....	80	61	89	69	93	68	92	73	94	77	92	72	79	69	.....	.....	90	67	93	64	92	65	95	67	94	71	88	75
10....	82	61	83	58	87	67	89	71	91	74	89	73	79	64	.....	.....	86	62	86	65	84	65	88	71	90	71	82	68
11....	68	54	79	59	87	61	90	72	86	76	92	70	84	57	.....	.....	70	57	80	59	83	55	92	58	94	70	87	69
12....	75	51	72	50	78	54	79	62	80	70	81	63	75	52	.....	.....	68	55	64	55	64	52	73	52	91	60	78	53
13....	74	54	73	49	79	59	82	67	85	68	82	59	78	51	.....	.....	71	54	69	53	67	51	74	52	82	56	78	58
14....	79	54	75	53	77	55	81	65	79	69	85	59	77	55	.....	.....	74	57	72	57	72	47	72	52	83	54	78	56
15....	69	50	76	53	84	68	89	66	91	67	88	58	73	56	.....	.....	64	50	70	54	74	51	72	55	86	54	82	58
16....	66	45	65	48	66	53	68	61	73	66	79	59	65	50	.....	.....	63	47	58	50	63	45	68	54	79	62	70	57
17....	70	48	69	45	74	51	71	56	72	61	73	54	70	46	.....	.....	65	50	63	52	68	39	72	46	79	51	70	45
18....	68	53	73	42	78	55	80	60	85	63	83	56	71	52	.....	.....	70	54	75	55	74	48	75	49	82	48	72	50
19....	76	51	75	50	76	58	75	64	81	67	78	65	70	56	.....	.....	71	55	66	52	65	53	73	55	78	60	74	58
20....	77	52	78	49	79	56	76	60	74	67	82	65	73	53	.....	.....	76	53	79	55	76	47	71	49	81	54	79	50
21....	74	49	71	48	75	53	72	61	73	68	83	59	73	50	.....	.....	69	55	72	52	63	53	75	53	81	59	73	55
22....	78	51	.....	.....	80	55	83	60	77	63	80	54	76	52	.....	.....	75	54	76	56	64	50	76	51	81	52	76	57
23....	61	50	76	50	66	56	72	57	75	63	77	57	65	60	.....	.....	62	46	68	53	64	50	69	51	78	56	71	54
24....	64	47	61	48	60	51	64	55	67	57	71	51	60	48	.....	.....	53	46	53	46	56	51	62	51	67	52	64	44
25....	71	50	65	45	66	48	67	54	68	53	68	49	64	47	.....	.....	63	50	65	50	52	49	60	51	69	51	61	47
26....	75	55	77	46	78	52	74	54	71	55	73	50	70	51	.....	.....	74	54	73	54	73	47	70	52	76	46	77	52
27....	72	58	77	50	82	57	73	59	81	62	79	55	69	54	.....	.....	84	55	80	60	79	49	70	50	81	47	72	54
28....	78	60	83	58	78	66	79	63	79	66	85	58	64	59	.....	.....	73	64	71	59	73	54	68	58	85	53	77	62
29....	81	61	84	58	87	63	75	65	79	69	75	63	73	59	.....	.....	81	63	86	61	78	60	76	63	82	60	81	63
30....	73	55	.....	.....	90	64	86	63	88	66	85	61	71	61	.....	.....	75	63	77	63	84	58	87	61	87	65	85	63
31....	67	53	82	59	87	62	77	58	86	70	88	66	72	62	.....	.....	73	58	77	59	81	62	77	65	89	63	84	64
Mns..	74.9	54.4	78.9	54.2	80.8	60.0	81.0	64.1	83.5	68.5	84.7	69.2	73.7	57.3	.....	.....	75.1	56.6	75.8	56.9	74.2	53.2	77.5	57.2	85.7	59.9	80.9	60.0

Date.	Michigan.						Ohio.						New York.						Vermont.									
	Detroit.		Muskegon.		Saginaw, West Side.		Cleveland.		Lima.		Sandusky.		Toledo.		Erie, Pa.		Buffalo.		Canton.		Rochester.		Syracuse.		Burlington.		Northfield.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	90	68	90	62	97	68	83	64	92	62	91	67	93	69	83	62	77	65	83	56	89	59	86	58	85	55	84	47
2....	98	75	91	72	99	71	90	72	96	73	97	75	97	76	89	75	79	71	93	66	97	73	93	72	94	57	89	62
3....	100	78	95	79	100	72	94	76	96	69	98	76	100	76	92	77	82	74	95	74	100	75	96	78	100	75	98	66
4....	94	69	97	72	97	67	92	76	98	73	90	80	95	73	93	78	90	74	93	66	93	77	93	76	94	78	96	64
5....	96	77	95	83	101	72	96	76	95	74	98	76	98	77	96	77	95	77	98	64	101	73	100	71	98	62	97	58
6....	88	64	90	72	89	70	88	73	95	72	94	75	94	73	88	75	86	73	89	66	93	75	91	74	91	67	95	68
7....	85	60	86	60	87	61	78	71	88	69	80	71	81	63	79	70	83	66	75	56	78	68	82	65	75	57	78	48
8....	92	67	93	68	96	62	83	68	89	70	87	69	93	72	85	70	89	66	86	54	93	65	88	62	88	53	86	45
9....	91	74	90	72	96	73	84	72	91	72	94	71	92	71	90	76	83	75	92	69	95	75	95	73	95	68	92	63
10....	88	73	86	70	90	80	86	71	86	72	91	72	90	73	89	75	82	73	93	74	94	75	94	68	96	71	95	64
11....	91	70	88	74	95	81	85	71	91	61	93	64	91	68	84	72	85	73	89	70	93	72	92	67	96	75	91	68
12....	81	62	82	60	83	57	74	66	85	67	78	68	82	66	76	68	77	66	80	61	80	66	78	61	86	65	88	55
13....	83	60	88	68	84	56	78	62	86	69	82	68	83	61	77	62	76	62	76	57	79	59	76	60	80	57	78	50
14....	84	62	88	60	85	58	82	64	87	64	85	61	85	62	79	62	78	62	80	55	80	58	80	58	82	52	81	46
15....	84	60	89	63	85	55	84	64	86	56	87	61	86	63	79	65	76	59	79	56	78	60	80	62	82	59	82	49
16....	75	60	80	62	81	60	77	64	79	65	80	63	75	61	78	63	78	61	82	61	82	63	84	60	86	64	82	51
17....	74	58	72	55	77	53	70	59	74	55	72	60	74	59	70	59	68	59	74	59	71	61	73	60	78	63	72	59
18....	78	58	79	54	82	50	74	57	80	50	78	56	82	58	74	56	73	57	76	56	74	53	73	58	76	57	78	52
19....	77	66	75	65	82	60	79	61	75	65	81	63	81															

CLIMATOLOGICAL DATA FOR JULY, 1911.

DISTRICT No. 5, UPPER MISSISSIPPI VALLEY.

GEORGE M. CHAPPEL, District Editor.

GENERAL SUMMARY.

July, 1911, was characterized by excessively high temperatures during the first five days, unusually low temperatures between the 11th and 28th, and over the southern and western sections by the continuation of the drought that has obtained during the past three months. The month opened with a hot wave that continued until the night of the 5th. During that period temperatures of 100° or higher were recorded on one or more days in all parts of the upper Mississippi Valley, the highest recorded in each State being as follows, viz: North Dakota, 102°; Minnesota, 105°; South Dakota, 102°; Wisconsin, 106°; Iowa, 111°; Missouri, 113°; Indiana, 105°; and Illinois, 108°. The torrid period will be memorable in weather annals for its wide extent, its long duration, the large number of fatalities that it caused, and its damaging effects upon crops; but it did not equal the hot period in July, 1901, either in duration or the severity of the heat. Relief from the hot wave came with light to heavy thunderstorms over the larger part of the territory on the evening of the 5th, or the morning of the 6th, which also gave great relief from the drought that was becoming serious in many localities.

After the 15th the weather was much cooler, and, as a result, the monthly mean temperature for the district was only a fraction of a degree above the normal. Unusually cool weather prevailed between the 11th and the 28th, lower temperatures being observed at numerous stations than were ever before recorded during the latter half of July. Freezing temperatures occurred in Minnesota on the 11th and in North Dakota on the 16th; and frost was observed in North Dakota and Minnesota on the 16th, in Wisconsin on the 17th, and in northern Illinois on the 26th. Showers were more frequent and the rainfall more copious after the 5th, but there was a deficiency of moisture in all sections except Minnesota, South Dakota, and Indiana, where there was a slight excess for the month. Iowa reported a greater deficiency of rainfall than any other section of the district, but yet the eastern counties of that State showed an excess. In the western portion of Iowa, within this district, the drought was severe during the entire month and crops were seriously damaged; small streams were dry; wells were low, and water for stock was scarce.

TEMPERATURE.

In regard to temperature July was a month of extremes. The maximum temperatures were nearly as high as those recorded in July, 1901, when all previous records for high temperatures were broken, and the minimum temperature at numerous stations was lower than ever before recorded during the latter half of July; and yet the monthly mean was only 0.7° above the normal. The first five days were excessively hot, temperatures of 100° or higher being recorded on one or more days in all parts of the district, the highest being 113°, in Missouri, on the 3d. From the 6th to the 10th the weather was moderate as compared with the first five days, but still the temperature was

above the normal. From the 11th to the 28th it was unusually cool, with temperatures near or below the freezing point in the extreme northern part of the district on one or more days, and only slightly above 40° in southern sections.

The monthly mean temperature for the district, as shown by the records of 293 stations, is 71.9°, which is 0.7° above the normal. The highest monthly mean was 80.4° at Steffenville, Mo., and the lowest, 60°, at Hannah, N. Dak. The highest temperature was 113°, at Steffenville, Mo., on the 3d, and the lowest, 23°, at Manfred, N. Dak., on the 16th.

PRECIPITATION.

As in May and June, the rainfall for July was below the normal over the larger part of the upper Mississippi Valley, the only sections reporting an excess being Minnesota and the small portions of South Dakota and Indiana within the district; and yet there were localities in all sections where more than the normal amount fell, while in other, and frequently near-by, localities the rainfall was decidedly deficient. All of the rainfall came in the form of local showers, many of which covered very small areas, and, although the showers were fairly well distributed throughout the month, the drought continued with increased severity in many localities. In North Dakota the precipitation was fairly evenly distributed, both geographically and throughout the month, but at the close of the month vegetation was in a backward condition and more rain was badly needed for late grains and pastures. In Minnesota the rainfall ranged from more than 4 inches in a large number of southeastern and eastern counties to less than 2 inches in several southwestern and northwestern counties. There was a quite general and considerable excess in most of the central and southern and a general deficiency in the northwestern counties.

In Nobles County, in the extreme southwestern part of the State, there was a deficiency of 2.75 inches. In Wisconsin rainfall was light in the southern half of the State, but was heavy in the northern counties, especially in the headwaters of the Wisconsin River, where the totals for the month ranged from 5 to 9 inches. Some moderately severe thunderstorms were reported, which were accompanied by high wind and light hail, but the damage reported was slight. The fall of precipitation was well distributed throughout the month in most localities, and this alleviated somewhat the droughty conditions existing in some counties. The severe drought that has obtained in Iowa during the past three months continued over the larger part of the State during the entire month. In the eastern counties the drought was broken by copious showers on the 5th, which were followed by fairly well distributed showers during the remainder of the month, with heavy rains on the 28th. Over the western part of the State, the drought continued with increased severity, notwithstanding the fact that there was only one day, the 1st, during the month on which rain did not fall at some place within that part of the State in district No. 5. The amounts of rainfall over the western counties were,

however, too small, on account of the great interval between showers at any one place, to be of much benefit to crops. All small streams are dry, wells are low, and water for stock is very scarce; and, as a result, many farmers are selling their live stock. The drought is the worst that has prevailed since 1894, and the temperature during the first five days of the month was the highest ever recorded in the State so early in July, and the highest on record, except during the hot wave in the latter part of July, 1901. In Missouri the drought which began about May 1 was partially relieved during the second week by scattered showers, and further alleviated by good rains on the 23d and the last two days of the month. At the close of the month vegetation, which had suffered severely, had revived somewhat, and the rains were sufficient to replenish stock water for the time being, and corn was greatly improved. Practically no rain fell in that part of Indiana within the district during the first week, but showers were frequent after that time. They were extremely local in character, however, and while some places were favored with sufficient moisture to sustain a normal crop growth, other sections suffered severely from the drought that prevailed along the western border of the State in the lower Kankakee and Iroquois Valleys at the close of the preceding month.

In that part of Illinois near the Mississippi River, in the northern half of the State, and at Springfield, the precipitation was considerably above the normal, but in all other sections it was deficient. Together with the dry weather in May and June, the deficiency in precipitation caused great injury to crops and pastures. This condition was felt most in southern Illinois and least in the northern counties, as the amounts of precipitation were least in the south end and most in the north, although localities in all parts of the State have suffered. The average amounts of rainfall, with the departure from the normal, for the various States, are as follows: North Dakota, 1.95 inches, -0.84 inch; Minnesota, 3.51, +0.29; South Dakota, 3.18, +0.57; Wisconsin, 4.20, -0.31; Iowa, 2.66, -1.45; Missouri, 3.93, -0.23; Indiana, 2.86, +0.02; Illinois, 2.35, -1.27 inches.

The average precipitation for the district, as shown by the records of 319 stations, is 3.02 inches, which is 0.83 inch below the normal. The greatest amount, 9.31 inches, occurred at Rhinelander, Wis.; and the least, 0.08 inch, at Jefferson, Iowa. The greatest amount in 24 consecutive hours, 4.69 inches, occurred at Sublett, Mo., on the 23d. A few flakes of snow were observed at Minonk, Ill., on the 24th, and also at Riley, Ill., on the 25th. These are the first reports of snow in July ever made in Illinois, according to the records on file at Springfield. Measurable precipitation occurred on an average of eight days.

SUNSHINE AND CLOUDINESS.

The average number of clear days was 17; partly cloudy, 10; cloudy, 4. The duration of sunshine was above the normal.

WIND.

Northwest winds prevailed over the northern and south and southwest over the southern part of the district. The highest velocity reported was 54 miles per hour, from the north, at St. Paul, Minn., on the 4th.

RIVERS.

All rivers in the district were at a low stage throughout the month, but not as low as they were during July, 1910.

The Mississippi River at Dubuque, Iowa, fell steadily from the 1st to about the middle of the month, after which the fall was slight. The Wisconsin River was higher at the close of the month than at the beginning.

The average stage of the Wisconsin River, at Wausau, Wis., was 4.1 feet, or 2.5 feet higher than during July, 1910. The average stage at Portage, Wis., was 2.6, or 1 foot higher than during July, 1910. The decidedly higher stage of the upper Wisconsin this July, as compared to last, is due to the heavy rains in northern Wisconsin during the last 30 days. For instance, the rainfall at Rhinelander during July, 1911, was 9.31 inches, as compared to 1.39 inches during July, 1910. The stage of the Mississippi River at Prairie du Chien, Wis., ranged from 1.9 feet on the 1st, to 0.5 foot on the 31st., with an average of 1 foot, or 0.3 foot higher than during July, 1910. At Dubuque it ranged from 2.6 feet on the 1st to 1.1 feet on the 20th, with an average stage of 1.5 feet, or 0.5 foot higher than during July, 1910. On the 17th the steamer *Morning Star*, Northern Line, running from St. Louis to St. Paul, laid up at Le Claire, owing to low water. The steamer *Saint Paul*, Streekfus Line, running from St. Louis to St. Paul, made the trip on schedule time until she was disabled by running onto a snag near Quincy on the 28th; she expects to resume her schedule about August 1. Last year the upper Mississippi was closed to navigation during July.—J. H. Spencer, Local Forecaster.

Throughout the Davenport river district the Mississippi remained low during the entire month, and at the close of the month was only a few tenths of a foot higher than at the corresponding time in 1910. The Illinois River was low during most of the month.

MISCELLANEOUS.

A number of destructive wind, thunder, rain, and hail storms occurred in Iowa and Illinois during the month. The storms were, however, local in character, covering only small areas, and the damage wrought was immaterial for the district, as a whole.

On the afternoon of July 31 a torrential rainstorm occurred near What Cheer, Keokuk County, Iowa. The following is an extract from an article published in the Des Moines Evening Tribune on August 1, 1911:

WHAT CHEER, IOWA, August 1.—Without warning a wall of water swept down Coal Creek last night, killing cattle, moving buildings, ruining crops, and destroying bridges, causing a total loss of between \$25,000 and \$30,000. A heavy rain fell here all the afternoon, but at Tilton, 7 miles north of here, the precipitation was immense. Coal Creek, usually a dry stream, was soon filled and quickly spread beyond the banks, and Main Street became a river almost in a second. Five feet of water flowed into the stores, stocks of goods were ruined, and clerks and storekeepers were forced to abandon the establishments. The sudden rise of Coal Creek began at 6 o'clock in the evening and continued until midnight. Many people became alarmed for the safety of their lives, but shortly after 12 o'clock the water began to subside, and this morning the creek is again within its banks. No damage was done by the water at Tilton, which is a coal camp. Here the loss will be between \$25,000 and \$30,000. The business section was demoralized, 5 buildings being moved from their foundations and others received damage. Five feet of water stood in many of the business houses. A 30,000-gallon tank in the Standard Oil Co.'s yards was toppled over and the entire contents lost. No fatalities were reported, although cattle in great numbers were killed in the flood. The wall of water came almost without warning, and farmers were unable to rescue their stock. Crops are damaged badly. Coal Creek has been dry since early in the summer, but at points last night it was nearly a mile wide. It flows into the South Skunk River.

DRAINAGE AND ENGINEERING NOTES.

The preliminary survey of a proposed drainage district in Worth County, Iowa, referred to last month, has been completed, and Engineer Frank Forbes will have his report ready for the action of the board of supervisors at their next session.

The concrete dam across the Des Moines River, just above Humboldt, Iowa, is well along toward completion. It is 340 feet in length and will develop a head of 20 feet with an estimated horsepower of 1,800.

TABLE 1.—Climatological data for July, 1911. District No. 5, State of North Dakota.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.	
North Dakota.																			
Amenia.....	Cass.....	954	14	71.1	+ 3.7	99	1	37	16	50	2.00	- 1.78	1.35	0	3	20	6	5	C. E. Wood.
Bottineau.....	Bottineau.....	1,658	16	62.6	- 3.3	92	3	39	17	47	3.10	+ 0.88	1.42	0	12	.....	.....	.....	J. A. Kemp.
Cando.....	Towner.....	1,488	10	61.9	- 2.3	88	8	33	17	44	1.63	- 2.19	0.86	0	5	.....	.....	.....	E. T. Judd.
Crosby.....	Divide.....	.....	5	62.4	- 2.4	94	26	39	17	45	1.31	.....	0.65	0	6	21	4	6	H. C. Kashau.
Devils Lake.....	Ramsey.....	1,482	6	64.2	- 3.7	89	8	39	17	35	2.04	- 1.74	0.96	0	11	15	12	4	U. S. Weather Bureau.
Donnybrook.....	Ward.....	1,760	12	62.9	- 1.6	95	7	39	15	47	2.37	- 0.67	0.72	0	7	.....	.....	.....	C. J. Devore.
Dunseith.....	Rolette.....	.....	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. H. Trowbridge.
Edmore.....	Ramsey.....	1,524	6	63.9	.....	88	8	34	17	41	0.98	.....	0.30	0	8	18	12	1	H. R. Aslakson.
Forman.....	Sargent.....	1,249	17	69.6	+ 0.7	102	8	40	21	45	2.42	- 0.23	0.56	0	9	20	8	3	A. Maltby.
Grafton.....	Walsh.....	827	20	64.7	+ 0.1	102	1	40	16	38	1.61	- 0.38	0.57	0	8	18	9	4	A. R. T. Wylie.
Granville.....	McHenry.....	1,504	5	64.3	.....	96	7	38	16	49	1.97	.....	0.66	0	5	19	9	3	W. A. Christiansen.
Hannah.....	Cavalier.....	1,568	6	60.0	.....	87	4	36	25	43	2.37	.....	1.01	0	7	.....	.....	.....	J. Moffatt.
Hansboro.....	Towner.....	.....	3	63.0	.....	89	4	36	16	42	2.14	.....	0.39	0	9	21	8	2	Geo. Dale.
Hillsboro.....	Trail.....	901	6	68.2	.....	95	1	43	16	39	2.50	.....	1.05	0	9	17	13	1	F. E. Mayall.
Lakota.....	Nelson.....	1,519	5	61.4	.....	86	8	36	16	42	2.14	.....	0.90	0	8	.....	.....	.....	C. R. Pettes.
Langdon.....	Cavalier.....	1,615	16	61.2	.....	89	9	36	16	40	1.38	.....	0.61	0	7	20	0	11	J. Woolner.
Larimore.....	Grand Forks.....	1,134	16	64.4	- 1.5	91	1	40	16	38	1.95	- 1.16	0.82	0	10	16	13	2	J. Dexter Pierce.
Lisbon.....	Ransom.....	1,091	7	67.7	+ 0.1	102	8	39	21	44	1.89	- 1.45	0.63	0	8	19	5	7	H. K. Adams.
McKinney.....	Renville.....	1,640	17	62.5	- 3.3	97	7	30	17	47	1.06	- 1.11	0.60	0	4	.....	.....	.....	N. P. Swenson.
Manfred.....	Wells.....	1,605	10	63.6	.....	94	7	23	16	62	2.77	.....	1.32	0	6	10	12	9	P. B. Anderson.
Mayville.....	Trail.....	975	15	73.4	+ 5.5	92	1	50	22	29	3.19	- 0.33	0.47	0	9	26	0	5	W. C. Gould.
Minot.....	Ward.....	1,557	13	65.2	- 3.4	94	3	37	17	44	1.21	- 0.54	0.79	0	5	25	2	4	J. J. Bates.
Minto.....	Walsh.....	820	18	64.3	- 2.7	90	1	40	17	41	2.12	- 0.75	0.87	0	14	18	12	1	S. S. Marsh.
Oriska.....	Barnes.....	1,270	6	65.6	.....	92	1	39	16	37	2.33	.....	0.77	0	9	8	21	2	W. E. Williams.
Park River.....	Walsh.....	998	8	68.3	.....	94	29	42	16	48	1.29	.....	0.45	0	9	14	17	0	A. Heyward.
Pembina.....	Pembina.....	789	13	63.7	- 2.4	92	1	39	16	38	3.17	+ 0.28	1.80	0	9	21	2	8	C. W. Shumaker.
Power.....	Richland.....	1,020	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Power.
Pratt.....	McHenry.....	.....	6	63.2	.....	96	7	34	16	55	1.63	.....	0.58	0	5	24	6	1	W. B. Ahern.
Towner.....	do.....	.....	3	64.2	.....	94	7	36	16	43	1.95	.....	0.96	0	5	17	13	1	B. Bagley.
University.....	Grand Forks.....	830	19	65.3	- 1.7	91	1	38	16	39	2.06	- 0.43	0.72	0	12	14	12	5	H. E. Simpson.
Wahpeton.....	Richland.....	962	19	65.8	- 4.2	102	1	39	16	40	2.51	- 1.64	0.73	0	9	17	4	10	E. G. Burch.
Walhalla.....	Pembina.....	966	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. H. Lee.
Westhope.....	Bottineau.....	.....	5	69.8	.....	96	7	45	11	30	1.34	.....	0.55	0	8	13	13	5	W. C. Clark.
Willow City.....	do.....	1,471	18	61.4	- 4.1	91	7	31	17	46	1.17	- 1.10	0.45	0	4	5	24	2	M. A. Ostby.
Minnesota.																			
Albert Lea.....	Freeborn.....	1,229	20	72.2	+ 0.8	103	4	45	17	39	5.52	+ 1.87	2.00	0	7	15	15	1	Edward Carey.
Alexandria.....	Douglas.....	1,391	17	68.2	- 1.3	99	30	46	21	37	4.21	+ 0.95	1.10	0	9	16	6	9	P. O. Unumb.
Angus.....	Polk.....	870	9	63.4	.....	91	1	34	16	40	2.28	.....	0.80	0	11	14	15	2	John Nadvornik.
Bagley.....	Clearwater.....	.....	5	64.2	.....	95	1	37	16	44	3.05	.....	1.00	0	9	4	27	0	Jens Nelson.
Beardsley.....	Bigstone.....	1,090	17	70.2	+ 0.7	104	30	41	21	45	.....	.....	.....	0	.....	12	12	2	Roy A. Smith.
Beaulieu.....	Mahnomen.....	1,200	9	66.5	.....	95	8	35	16	37	2.61	.....	1.50	0	8	13	18	0	Dr. P. A. Slattery.
Bird Island.....	Renville.....	1,039	21	69.6	- 1.3	98	1	42	25	40	3.95	+ 0.85	1.56	0	9	7	20	4	Dr. F. L. Puffer.
Caledonia.....	Houston.....	1,179	18	72.8	+ 1.7	100	1	51	17	28	3.10	- 0.77	0.92	0	8	19	5	7	W. D. Belden.
Campbell.....	Wilkin.....	984	2	66.6	.....	101	1	37	16	45	2.96	.....	0.50	0	14	21	3	7	J. T. Neisess.
Cass Lake.....	Cass.....	1,300	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	2	.....	.....	.....	C. W. Burns.
Collegeville.....	Stearns.....	1,282	18	70.4	- 0.8	95	1	48	16	35	2.02	- 1.31	0.69	0	12	21	7	3	Fridolin Trembreul.
Crookston.....	Polk.....	863	21	66.8	- 1.6	99	8	43	16	33	1.78	- 1.63	0.78	0	8	22	2	7	A. G. Andersen.
Detroit.....	Becker.....	1,364	15	66.7	- 0.6	97	1	35	21	45	4.04	- 0.14	1.87	0	11	19	8	4	G. W. Peoples.
Ely.....	St. Louis.....	.....	.....	64.8	.....	96	1	46	24	29	4.20	.....	1.78	0	13	8	21	2	Rev. W. H. Farrell.
Fairmont (near).....	Martin.....	1,240	24	72.0	+ 0.8	101	2	47	17	40	3.71	+ 0.36	1.36	0	11	11	16	4	W. F. Wierland.
Farmington.....	Rice.....	1,003	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. A. C. Tanner.
Fergus Falls.....	Dakota.....	902	23	70.8	+ 0.2	97	2	46	26	39	4.42	+ 1.11	1.33	0	12	14	8	9	E. D. Akin.
Fergus Falls.....	Ottertail.....	1,210	19	68.8	- 1.1	97	1	44	16	36	4.10	+ 0.32	0.89	0	13	17	11	3	C. E. Kissinger.
Fort Ripley.....	Crow Wing.....	1,136	4	66.8	.....	98	1	41	21	44	3.07	+ 0.55	0.60	0	11	21	2	8	J. J. Tucker.
Fosston.....	Polk.....	1,289	2	64.8	.....	94	8	36	16	38	2.07	.....	0.70	0	10	12	19	0	O. N. Hem.
Frank.....	Marshall.....	.....	.....	61.5	.....	92	1	35	16	44	1.75	.....	0.48	0	10	6	25	0	A. W. Clark.
Glencoe.....	McLeod.....	1,000	15	70.4	+ 0.8	101	5	45	18	41	3.95	+ 1.06	1.75	0	7	10	12	0	F. B. Reed.
Grand Meadow.....	Mower.....	1,338	23	71.5	+ 0.1	102	2	43	14	38	5.25	+ 0.98	2.90	0	9	17	11	3	C. F. Greening.
Gull Lake Dam.....	Cass.....	1,215	.....	66.8	.....	99	1	43	14	38	2.66	.....	1.78	0	11	4	21	6	G. A. Williams.
Hallock.....	Kittson.....	815	12	63.6	- 2.6	89	1	37	16	38	2.96	- 0.27	0.95	0	12	21	2	8	D. A. Robertson.
Halstad.....	Norman.....	870	5	65.7	.....	96	8	37	16	38	2.96	.....	1.70	0	9	15	8	5	A. G. Holstrom.
Hinckley.....	Pine.....	1,050	6	67.3	.....	96	1	41	19	38	3.38	.....	1.11	0	9	14	15	2	W. R. Newman.
International Falls.....	Koochiching.....	1,112	3	65.8	.....	99	1	32	11	41	2.03	.....	0.50	0	7	13	12	6	Rees Roe.
Itasca State Park.....	Clearwater.....	1,500	.....	66.5	.....	100	1	38	17	52	3.03	.....	1.89	0	12	19	8	4	J. A. Stillwell.
Kelliher.....	Beltrami.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. Gilmour.
Lake Crystal.....	Blue Earth.....	.....	4	71.4	.....	99	2	46	26	38	3.85	.....	1.26	0	9	19	8	4	W. P. Cobb.
Leech Lake Dam.....	Cass.....	1,301	23	65.8	- 1.1	95	1	42	18	38	3.05	- 1.21	2.02	0	10	3	25	3	Hans Olson.
Litchfield.....	Meeker.....	1,134	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	N. Y. Taylor.
Littlefork.....	Koochiching.....	.....	.....	62.8	.....	99	1	35	16	50	1.98	.....	0.63	0	10	10	12	9	O. C. Olson.
Long Prairie.....	Todd.....	1,299	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. L. Sheets.
Lynd.....	Lyon.....	1,175	19	70.2	+ 0.3	103	4	40	22	45	4.30	+ 1.36	2.32	0	8	23	6	2	J. W. Rouse.
Mankato.....	Blue Earth.....	758	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Sadie H. Blake.
Milaca.....	Millelacs.....	1,072	13	66.4	- 2.3	95	1	39	26	42	4.69	+ 0.28	1.76	0	14	12	17	2	C. H. Foss.
Milan.....	Chippewa.....	955	17	68.6	- 1.4	101	30	44	19	39	3.25	+ 0.19	0.81	0	16	5	24	2	O. K. Opjorden.
Minneapolis.....	Hennepin.....	918	20	71.1	- 0.9	99	1	50	24	29	4.62	+ 0.81	1.56	0	16	12	13	6	U. S. Weather Bureau.
Montevideo.....	Chippewa.....	900	21																

TABLE 1.—Climatological data for July, 1911. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.					Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	
Minnesota—Contd.																				
St. Paul.	Ramsey.	837	40	70.6	- 1.5	99	2	46	24	32	5.15	+ 1.75	1.47	0	17	12	16	3	nw.	U. S. Weather Bureau.
St. Peter.	Nicollet.	825	17	72.3	- 0.9	98	1	45	17	41	4.35	+ 0.66	1.93	0	9	18	7	6	n.	State Hospital.
Sandy Lake Dam.	Aitkin.	1,234	18	63.9	- 3.2	92	1	43	16	33	5.08	+ 1.14	2.10	0	8	5	21	5	nw.	A. Newstrom.
State Sanatorium.	Cass.	66.6	3	66.6		96	1	43	16	31	3.73		2.38	0	14	8	18	5	ne.	Dr. W. J. Marcle.
Stillwater.	Washington.	694	6								4.60		1.92	0	12	14	3	14	sw.	Oscar Ostrom.
Taylor Falls.	Chisago.	759	4	70.0		97	1	43	17	36	4.24		1.53	0	8	16	6	9	nw.	Minneapolis Gen. Elec. Co.
Warroad.	Roseau.	1,069	2	64.3		93	8	40	17	40	2.70		1.35	0	8	20	7	4	w.	J. H. Sawyer.
West Concord.	Dodge.	1,232	2																	H. H. Orcutt.
Winnabago.	Faribault.	1,100	12	72.3	+ 0.2	103	4	47	17	40	3.74	- 0.75	1.95	0	11	15	11	5	se.	H. H. Haught.
Winnibigoshish.	Itasca.	1,300	23	67.8	+ 0.7	94	1	47	22	32	2.84	- 1.20	1.84	0	7	22	8	1	nw.	John Duncan.
Winona.	Winona.	700	15	74.4	+ 1.5	105	2	45	17	41	2.08	- 0.77	0.43	0	10	13	10	8	nw.	F. C. Myers.
Worthington.	Nobles.	1,593	16	73.2	+ 3.4	102	4	46	21	46	1.39	- 2.75	0.33	0	12	19	5	7	s.	M. F. Mann.
Zumbrota.	Goodhue.	917	15																	W. C. Rowell.
South Dakota.																				
Milbank.	Grant.	1,148	20	69.0	- 1.0	102	30	45	16	40	3.18	+ 0.57	0.91	0	10	21	3	7	nw.	I. T. Patridge.
Wisconsin.																				
Antigo.	Langlade.	1,489	17	67.7	+ 0.1	100	2	41	24	34	5.56		1.43	0	12	15	8	8	w.	Elton C. Larzelere.
Barron.	Barron.	1,113	20	67.2	+ 1.0	97	2	34	17	48	3.90	+ 0.02	1.03	0	7	17	11	3		Wm. A. Kent.
Beloit.	Rock.	750	45	73.1	+ 0.2	98	3	47	26	32	1.40	- 2.25	0.80	0	6	29	0	2	w.	Smith Observatory.
Big St. Germain Dam.	Vilas.	1,590	1	64.8		100	2	39	18	37	9.30		3.30	0	14	10	11	10	sw.	Oscar Brehmer.
Brodhead.	Green.	812	13	75.2	+ 2.4	104	5	45	26	41	0.91		0.26	0	6	18	13	0	sw.	Hector D. Kirkpatrick.
Burnett.	Dodge.	880	7	71.4		97	2	47	17	34	1.30	- 3.77	0.34	0	11	13	14	4	sw.	Geo. W. Smith.
Cottage Grove.	Dane.	888									1.62		0.50	0	10	18	9	4	sw.	John E. Mellish.
Darlington.	Lafayette.	867	5	74.2		105	5	39	26	46	1.90		0.50	0	7	23	8	0	nw.	S. P. Nelson.
Deerskin Dam.	Forest.	1,625	1	63.4		101	2	35	24	39	7.13		1.28	0	14	15	13	3	w.	Wm. E. O'Neal.
Delavan.	Walworth.	920	20	73.6	+ 1.7	102	5	42	17	43	1.64	- 2.62	0.93	0	10	20	6	5	sw.	Elwood S. Austin.
Dodgeville.	Iowa.	1,116	11																	Geo. H. Butler.
Downing.	Dunn.	983	9	66.7		96	1	38	17	44	3.30		0.88	0	8	3	5	23	w.	Eugene F. Stoddard.
Eau Claire.	Eau Claire.	800	20	70.6	- 0.1	98	2	45	17	35	4.13	+ 0.66	0.93	0	10	16	12	3	nw.	Robert D. Whitford.
Grand Rapids.	Wood.	1,021	12	69.6	+ 0.3	99	2	40	18	36	2.93	+ 0.06	0.54	0	12	17	6	8	sw.	Willis B. Raymond.
Grantsburg.	Burnett.	1,095	20	68.9	- 0.2	100	1	41	22	46	5.87	+ 1.47	1.45	0	10	14	7	10	nw.	Theodore Olsen.
Hancock.	Waushara.	1,091	19	71.8	+ 0.9	100	2	44	17	36	3.13	- 0.82	1.00	0	8	14	9	8	w.	Frederick B. Hamilton.
Hatfield.	Jackson.	973	17	68.7	- 1.9	98	2	37	17	44	5.42	+ 1.86	1.16	0	11	2	22	7	se.	Walter S. Woods.
Hayward.	Sawyer.	1,197	20	67.2	+ 0.2	95	2	41	14	40	6.09	+ 2.34	1.50	0	12	13	6	8	nw.	William E. Swain.
Hillsboro.	Vernon.	1,000	20	69.0	- 0.3	98	2	38	17	44	4.20	+ 0.71	1.11	0	9	15	15	1	sw.	Emil V. Wernick.
Koepenick.	Langlade.	1,683	20	64.4	- 3.0	98	2	35	17	40	6.25	+ 2.41	1.10	0	13	14	5	12	nw.	Edward S. Koepenick.
Lac du Flambeau.	Vilas.	1	67.4		99	2	46	24	36	6.48			2.18	0	12	15	12	4	w.	W. J. Lovett.
La Crosse.	La Crosse.	714	39	72.9	+ 0.2	103	2	45	17	38	2.58	- 1.49	0.57	0	11	13	8	10	s.	U. S. Weather Bu., S. New ton.
Lake Mills.	Jefferson.	897	20	74.4	+ 3.2	106	3	45	16	36	0.84	- 3.25	0.26	0	7	17	12	2	sw.	Dexter Smith.
Lancaster.	Grant.	1,070	20	73.3	+ 1.6	102	5	49	24	29	3.80	- 0.31	1.00	0	9	17	11	2	sw.	Edward Pollock.
Long Lake.	Oneida.	1,592	3	64.6		103	2	35	18	43	6.96		1.43	0	16	17	8	6	s.	Louis Frank.
Madison.	Dane.	974	42	72.6	+ 0.2	98	4	52	25	30	1.68	- 2.31	0.58	0	9	14	11	6	sw.	U. S. Weather Bureau.
Matner.	Juneau.	962	7	68.4		99	2	37	17	39	2.90		0.49	0	12	12	9	10	w.	Frank Evans.
Mauton.	do.	882	15	71.2	+ 1.0	97	2	40	17	35	2.74	- 1.55	0.75	0	7	20	4	7	nw.	Eugene L. Hitchcock.
Meaflow Valley.	do.	974	20	68.2	- 1.1	100	2	38	17	41	3.39	- 0.59	0.93	0	13	6	23	2	sw.	Charles H. Johnson.
Medford.	Taylor.	1,420	22	67.0	- 1.8	98	2	40	17	35	6.48	+ 2.39	1.33	0	11	17	10	4	w.	William Zeit.
Merrill.	Lincoln.	1,267	5					40	17		5.69		1.70	0	11	16	0	15	s.	J. M. Wilson.
Minocqua.	Oneida.	1,604	7	66.6		98	2	42	19	32	7.92		2.14	0	14	10	16	5	nw.	Benjamin W. Applebee.
Mondovi.	Buffalo.	738	3	69.9		100	2	39	17	41	3.13		0.60	0	12	18	10	3	nw.	Dr. Charles Hebard.
Mount Horeb.	Dane.	1,226	7	71.8		103	5	45	25	38	4.09		2.40	0	10	22	6	3	s.	W. M. Lewis.
Muscola.	Grant.	666	2	76.0		105	5	46	26	39	2.16		0.58	0	8	19	5	7	nw.	William Hessler.
Neillsville.	Clark.	996	21	70.0	+ 0.2	99	2	40	17	39	3.81	+ 0.02	1.00	0	8	14	0	17	nw.	William Heaslett.
New Richmond.	St. Croix.	990	6	68.8		98	1	44	26	37	4.47		0.89	0	13	14	15	2	sw.	Franc A. R. Van Meter.
Oscola.	Polk.	806	20	68.0	+ 1.1	94	1	43	21	43	4.87	+ 0.75	0.94	0	11	13	4	14	w.	Charles W. Staples.
Park Falls.	Price.	1,492	20	66.0		97	1	40	26	39	5.40		2.33	0	13	12	17	2	w.	Flambeau Paper Co.
Portage.	Columbia.	809	22	75.0	+ 3.6	105	3	50	26	40	1.37	- 1.98	0.47	0	9	15	14	2	nw.	James H. Martin.
Port Edwards.	Wood.	969	1	71.3		101	2	38	17	40	3.23		0.90	0	13	10	0	21	w.	Nekoosa-Edwards Paper Co.
Prairie du Chien.	Crawford.	690	20	73.8	0.0	106	2	45	17	43	3.22	- 0.41	0.80	0	10	19	3	9	s.	James H. Gillis.
Prentice.	Price.	1,551	13	62.4	- 3.2	92	1	33	12	41	4.69	+ 0.60	1.10	0	9	11	10	10	w.	Joseph G. Lash.
Rhineland.	Oneida.	1,550	5	67.8		98	2	41	18	35	9.31		2.33	0	14	14	5	12	nw.	Rhineland Power Co.
Sauk City.	Sauk.	758	3	74.4		106	5	45	17	45	3.82		0.63	0	10	19	11	1	s.	Killen Derleth.
Shullsburg.	Lafayette.	1,019	5	72.4		101	5	43	17	40	2.51		0.75	0	8	13	10	8	sw.	Harrison B. Chamberlain.
Solon Springs.	Douglas.	1,083	5	66.4		98	1	40	20	42	6.70		2.75	0	8	13	13	5	sw.	John M. Sayles.
Spooner.	Washburn.	1,104	17	67.4	- 1.8	96	1	44	16	36	4.28	+ 0.31	1.72	0	10	18	8	5	w.	Horace A. Bresee.
Stanley.	Chippewa.	1,082	7	66.7		97	2	38	17	39	5.32		1.00	0	12	21	4	6	nw.	W. Humphrey Scott.
Stevens Point.	Portage.	1,113	18	69.8	+ 0.2	101	2	43	17	39	4.93	+ 1.53	2.10	0	7	17	10	4	w.	Garry E. Culver.
Sugar Camp Dam.	Oneida.	1,582	1								5.64		1.34	0	14				sw.	Robert Hayes.
Twin Lakes Dam.	Vilas.	1,625	1								7.32		2.28	0	9	8	17	6	nw.	Albert D. Hansen.
Valley Junction.	Monroe.	930	19	69.2	- 0.2	99	2	41	17	38	4.29	+ 0.23	1.13	0	11	15	11	5	nw.	Frederick Muermann.
Viroqua.	Vernon.	1,412	21	72.8	+ 2.4	102	4	46	26	33	3.06	- 1.06	1.05	0	11	11	14	6	sw.	Henry E. Rogers.
Vudess.	Vilas.	1,600	3	64.8		100	2	39	17	39	6.50		2.10	0	11	13	16	2	sw.	Louis L. Thomas.
Watertown.	Jefferson.	824	20	73.2	+ 2.8	100	5	47	26	34	1.01	- 2.71	0.50	0	8	19	11	1	sw.	Charles J. Salick.
Waukesha.	Waukesha.	864	20	73.0	+ 1.8	101	3	46	17	36	3.30	- 0.10	1.65	0	4	15	15	1	sw.	Carroll College.
Wausau.	Marathon.	1,212	16	68.8	+ 0.5	99	2	44	17	32	4.53	+ 0.34	0.66	0	14	18				

TABLE 1.—Climatological data for July, 1911. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.		
Iowa—Continued.																				
Burlington.....	Des Moines.....	544	15	77.2	+ 1.8	105	31	48	26	35	3.74	+ 0.12	1.50	0	4	22	0	9	sw.	Max E. Poppe, jr.
Carroll.....	Carroll.....	1,265	21	73.8	+ 0.8	105	4	42	16	43	0.24	- 3.77	0.24	0	1	25	6	0	se.	Mrs. Jos. J. Wolfe.
Cedar Rapids.....	Linn.....	733	20	76.3	+ 1.6	110	5	47	26	43	4.00	- 0.04	2.14	0	9	21	1	9	s.	Chas. B. Graf.
Charles City.....	Floyd.....	1,015	20	73.0	- 0.5	104	4	39	20	39	3.03	- 0.55	1.44	0	9	12	11	8	nw.	U. S. Weather Bureau.
Clear Lake.....	Cerro Gordo.....	1,241	13	75.6	+ 2.4	101	4	49	18	37	1.90	- 2.84	0.70	0	4	23	0	8	s.	Oscar Stevens.
Clinton.....	Clinton.....	593	44	75.0	+ 1.2	105	5	44	26	41	3.44	- 0.76	0.91	0	10	13	17	1	s.	Luke Roberts.
Columbus Junction.....	Louisa.....	595	10	76.6	+ 1.0	106	2	49	26	34	5.82	+ 1.81	2.35	0	6	27	3	1	s.	J. B. Johnston.
Davenport.....	Scott.....	580	40	76.7	+ 1.3	104	5	51	26	30	5.12	+ 1.57	2.73	0	11	16	13	2	s.	U. S. Weather Bureau.
Decorah.....	Winnishiek.....	875	18	75.9	+ 3.9	108	2	42	23	50	3.59	- 0.13	1.61	0	7	19	10	2	s.	F. H. Baker.
Delaware.....	Delaware.....	1,083	20	72.6	+ 0.7	103	5	47	17	38	5.31	+ 1.16	2.04	0	7	19	10	2	s.	William Ball.
Des Moines.....	Polk.....	861	33	77.2	+ 1.7	105	5	49	17	35	1.16	- 2.70	0.40	0	9	11	15	5	s.	U. S. Weather Bureau.
Dubuque.....	Dubuque.....	639	38	74.8	+ 0.1	104	5	49	26	35	4.41	+ 0.11	1.97	0	10	10	16	5	s.	Do.
Earlham.....	Madison.....	9	9	76.1	.....	109	5	41	17	46	1.41	.....	1.00	0	3	22	8	1	sw.	George Phillips.
Elkader.....	Clayton.....	727	32	73.8	+ 0.2	105	5	43	26	45	6.62	+ 1.94	1.75	0	7	17	13	1	nw.	Chas. Reinecke.
Elma.....	Howard.....	2	2	70.4	.....	102	21	38	17	48	3.63	.....	0.92	0	11	10	21	0	nw.	H. A. Moore.
Estherville.....	Emmet.....	1,298	16	72.4	+ 1.3	105	4	45	26	42	2.06	- 2.52	0.49	0	13	18	0	13	s.	A. O. Peterson.
Fairfield.....	Jefferson.....	27	27	72.8	- 0.3	103	4	42	17	45	3.39	- 0.70	1.15	0	7	22	6	3	sw.	R. Monroe McKenzie.
Fayette.....	Fayette.....	1,003	21	73.4	+ 1.4	105	4	46	17	45	1.86	- 1.82	0.84	0	7	21	5	5	sw.	R. Z. Latimer.
Forest City.....	Winnebago.....	1,226	17	74.1	+ 1.6	106	4	43	17	42	0.61	- 2.42	0.37	0	3	20	4	7	sw.	J. A. Peters.
Fort Dodge.....	Webster.....	1,126	11	74.1	+ 1.6	106	4	43	17	42	0.61	- 2.42	0.37	0	3	20	4	7	sw.	J. F. Monk.
Fort Madison.....	Lee.....	516	62	71.8	+ 1.3	95	21	47	17	32	2.92	- 1.82	0.70	0	11	11	17	3	sw.	Miss L. A. McCready.
Gilman.....	Marshall.....	1,052	12	71.8	+ 1.3	95	21	47	17	32	2.92	- 1.82	0.70	0	11	11	17	3	sw.	J. L. Wylie.
Grand Meadow.....	Clayton.....	1,180	20	71.8	+ 1.3	95	21	47	17	32	2.92	- 1.82	0.70	0	11	11	17	3	sw.	F. L. Williams.
Greene.....	Buller.....	13	13	76.4	+ 3.2	106	5	47	17	40	3.30	- 1.65	1.56	0	8	26	0	5	sw.	J. L. Cole.
Grinnell.....	Poweshiek.....	1,023	19	75.0	+ 2.8	105	5	40	17	42	1.07	- 3.48	0.57	0	7	24	0	7	s.	D. W. Brainard.
Grundy Center.....	Grundy.....	976	20	75.0	+ 2.8	105	5	40	17	42	1.07	- 3.48	0.57	0	7	24	0	7	s.	J. B. Calderwood.
Guthrie Center.....	Guthrie.....	1,077	16	76.5	+ 3.1	107	5	44	17	44	0.66	- 4.16	0.29	0	5	22	8	1	sw.	D. G. Beardsley.
Hampton.....	Franklin.....	1,155	21	75.0	+ 2.6	105	5	47	17	37	2.30	- 2.53	1.20	0	6	10	16	5	sw.	E. C. Grenelle.
Humboldt.....	Humboldt.....	1,095	23	74.8	+ 1.9	105	4	41	17	49	0.82	- 3.12	0.55	0	6	27	4	0	sw.	Henry S. Wells.
Independence.....	Buchanan.....	921	47	74.0	+ 1.1	103	5	44	26	34	5.39	+ 0.80	1.62	0	9	22	7	2	nw.	R. E. Dudley.
Indianola.....	Warren.....	969	20	78.2	+ 3.5	105	41	50	17	35	1.00	- 3.26	0.33	0	5	16	13	2	sw.	Prof. J. L. Tilton.
Iowa City.....	Johnson.....	683	51	74.2	+ 0.0	104	5	43	26	40	3.70	- 0.78	1.19	0	9	24	0	7	se.	Prof. A. G. Smith.
Iowa Falls.....	Hardin.....	1,170	18	72.2	+ 0.2	103	4	40	17	45	1.54	- 2.56	0.78	0	5	22	5	4	sw.	J. B. Parmelee.
Jefferson.....	Greene.....	12	12	76.6	.....	111	5	41	17	49	0.08	- 3.78	0.08	0	1	.....	.....	.....	se.	M. E. Hall.
Keokuk.....	Lee.....	547	40	78.2	+ 1.2	104	5	52	26	27	6.48	+ 2.45	1.91	0	7	15	13	3	s.	U. S. Weather Bureau.
Keosauqua.....	Van Buren.....	644	19	78.4	+ 2.5	111	5	43	26	46	3.41	- 0.72	1.76	0	8	7	15	9	sw.	J. H. Landes.
Knoxville.....	Marion.....	920	12	78.2	+ 2.7	109	5	49	17	38	3.07	- 1.39	1.08	0	7	17	7	7	sw.	Casey and Bellville.
Lacoma.....	Warren.....	11	11	76.6	.....	111	5	41	17	49	0.08	- 3.78	0.08	0	1	.....	.....	.....	se.	J. B. Alter.
Le Claire.....	Scott.....	576	11	75.7	+ 2.5	105	41	44	17	42	2.77	- 1.94	1.23	0	10	19	5	7	s.	Miss M. T. Disney.
Marshalltown.....	Marshall.....	947	19	73.2	+ 1.7	104	4	42	17	42	1.42	- 2.64	0.67	0	6	17	13	1	s.	Ralph B. Reasoner.
Mason City.....	Cerro Gordo.....	1,132	14	73.2	+ 1.7	104	4	42	17	42	1.42	- 2.64	0.67	0	6	17	13	1	s.	J. S. Mills.
Mount Pleasant.....	Henry.....	729	30	77.8	+ 2.2	104	5	46	26	40	3.53	- 0.30	1.59	0	8	12	19	0	se.	J. W. Edwards.
Muscatine.....	Muscatine.....	51	51	73.8	+ 2.4	104	4	45	17	40	2.90	- 1.29	0.95	0	7	18	13	0	sw.	William Molis.
New Hampton.....	Chickasaw.....	1,163	14	73.8	+ 2.4	104	4	45	17	40	2.90	- 1.29	0.95	0	7	18	13	0	sw.	A. F. Kemman.
Newtown.....	Jasper.....	944	23	73.8	+ 2.4	104	4	45	17	40	2.90	- 1.29	0.95	0	7	18	13	0	sw.	Hon. J. P. Beatty.
Northwood.....	Worth.....	1,222	15	72.8	- 0.4	107	5	41	26	45	5.67	+ 1.70	2.44	0	8	24	7	0	.....	Chas. H. Dwell.
Olin.....	Jones.....	760	13	74.2	+ 3.7	103	5	41	26	45	5.67	+ 1.70	2.44	0	8	24	7	0	.....	M. H. Crissman.
Osage.....	Mitchell.....	1,184	24	74.2	+ 3.7	103	5	41	26	45	5.67	+ 1.70	2.44	0	8	24	7	0	.....	Dr. A. D. Bundy.
Oskaloosa.....	Mahaska.....	843	35	77.4	+ 3.0	109	5	45	17	39	2.96	- 1.01	1.10	0	6	25	2	4	s.	Joseph Boyd.
Ottumwa.....	Wapello.....	649	16	79.3	+ 3.3	110	5	50	17	38	0.91	- 3.22	0.32	0	5	15	11	5	s.	Chester Potter.
Pella.....	Marion.....	877	9	76.1	.....	107	5	43	17	43	2.84	- 3.40	0.91	0	10	27	1	3	sw.	J. H. Ver Steeg.
Perry.....	Dallas.....	975	10	77.4	+ 2.8	109	5	45	17	43	1.21	- 3.40	0.78	0	5	20	8	3	sw.	Ed. S. Gray.
Plover.....	Pocahontas.....	1,426	15	74.6	+ 2.0	103	4	39	17	48	1.35	- 3.02	0.45	0	10	25	6	0	nw.	J. S. Smith.
Pocahontas.....	do.....	1,248	7	72.9	.....	102	4	45	17	39	1.62	- 3.02	0.69	0	10	17	14	0	s.	F. E. Hronek.
Ridgeway.....	Winneshiek.....	1,215	13	75.0	+ 1.6	104	5	46	17	40	3.81	- 0.85	1.88	0	11	18	12	1	s.	Arthur Betts.
Rockwell City.....	Calhoun.....	15	15	75.9	+ 2.5	103	31	48	17	35	1.05	- 2.47	0.45	0	4	.....	.....	.....	.....	C. M. Randall.
Sac City.....	Sac City.....	1,278	35	74.6	+ 1.9	100	4	50	17	35	1.53	- 2.50	0.80	0	5	18	7	6	.....	E. N. Bally.
St. Charles.....	Madison.....	1,070	10	78.1	+ 4.0	109	5	51	17	36	1.04	- 4.75	0.65	0	5	17	9	5	s.	R. D. Minard.
Sigourney.....	Keokuk.....	877	15	76.4	+ 0.6	104	5	47	17	39	3.68	- 0.62	2.43	0	7	1	30	0	sw.	J. T. Parker.
Stockport.....	Van Buren.....	745	9	77.9	.....	108	5	43	26	40	3.96	- 1.85	1.85	0	7	22	6	3	s.	C. L. Beswick.
Storm Lake.....	Buena Vista.....	1,440	22	74.0	+ 2.1	100	4	49	24	37	2.82	- 1.48	1.60	0	8	19	8	4	sw.	Prof. Warren Ingold.
Stuart.....	Guthrie.....	1,216	12	78.8	+ 4.0	108	3	52	24	34	4.01	- 0.21	1.79	0	7	.....	.....	.....	sw.	J. P. Fox.
Tipton.....	Cedar.....	807	12	78.8	+ 4.0	108	3	52	24	34	4.01	- 0.21	1.79	0	7	.....	.....	.....	sw.	F. K. Gregg.
Toledo.....	Tama.....	856	17	74.4	+ 0.8	102	5	42	26	39	2.61	- 1.45	0.83	0	7	.....	.....	.....	se.	I. F. Gier.
Wapello.....	Louisa.....	588	13	75.8	+ 0.6	103	4	48	25	29	3.95	+ 0.73	2.42	0	7	.....	.....	.....	se.	G. W. Schofield.
Washington.....	Washington.....	769	29	76.8	+ 1.3	105	5	48	26	33	3.35	- 0.27	1.72	0	5	10	20	1	s.	Wm. A. Cook.
Waterloo.....	Waterloo Hawk.....	862	28	74.0	+ 0.5	109	4	46	26	37	4.06	- 0.34	1.36	0	9	24	1	6	se.	Ralph B. Slippy.
Waukegan.....	Dallas.....	1,039	8	76.1	.....	106	5	43	22	43	1.79	- 0.67	0.67	0	9	20	8	3	sw.	Samuel F. Folt.
Waverly.....	Bremer.....	948	15	73.2	+ 0.8	105	4	42	26	42	3.44	- 1.10	1.45	0	5	.....	.....	.....	se.	Earl C. Moore.
Webster City.....	Hamilton.....	6	6	76.1	.....	107	5	39	16	50	0.50	- 0.44	0.44	0	2	22	9	0	n	

TABLE 1.—Climatological data for July, 1911. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>Illinois.</i>																				
Aledo.	Mercer.	738	11	75.6	+ 1.5	103	3†	47	26	30	3.84	+ 0.04	1.02	0	12	10	21	0	s.	William B. Frew.
Alexander.	Morgan.	670	18	76.6	+ 0.4	102	5	43	26	37	1.91	- 1.88	0.80	0	9	18	4	s.	George H. Hall.	
Antioch.	Lake.	861	10	74.0	+ 1.6	105	5	46	17†	39	1.28	- 2.10	0.67	0	4	13	12	6	w.	J. C. James.
Astoria.	Fulton.	650	12	75.0	+ 1.2	99	4†	46	17	35	2.90	- 0.65	1.10	0	7	21	7	3	s.	Edward V. Bohl.
Aurora.	Kane.	687	32	73.0	- 0.1	99	5	44	26	39	2.96	- 1.41	1.12	0	7	15	10	6	sw.	W. Holden.
Beardstown.	Cass.	448	—	—	—	—	—	—	—	—	3.04	—	1.10	0	8	—	—	—	—	Mrs. L. M. Rice.
Bement.	Platt.	700	4	77.2	—	103	3†	50	18†	40	—	—	—	0	—	15	10	6	w.	Rev. C. S. Adams.
Bloomington.	McLean.	840	20	76.3	+ 0.7	103	3†	46	26	38†	2.80	- 0.96	1.22	0	6	19	8	4	sw.	Prof. H. N. Pearce.
Cairo.	Alexander.	359	33	78.4	- 0.2	99	4	59	25	24	1.90	- 1.40	0.96	0	8	9	14	8	sw.	U. S. Weather Bureau.
Carbondale.	Jackson.	412	6	79.7	—	104	4	51	26	38	2.60	—	1.46	0	6	15	13	3	sw.	State Normal University.
Carlinville.	Macoupin.	663	21	77.6	+ 1.2	104	5	48	26	38	2.30	- 1.57	0.95	0	4	21	8	2	s.	W. T. Eddy.
Carlyle.	Clinton.	470	26	—	—	—	—	—	—	—	0.95	- 2.84	0.40	0	4	—	—	—	—	J. E. Rogan.
Chester.	Randolph.	380	5	—	—	—	—	—	—	—	1.58	—	0.46	0	10	—	—	—	—	F. A. Gollon.
Clinton.	Dewitt.	727	—	76.2	—	102	4†	47	26	33	2.77	—	1.34	0	6	27	3	1	sw.	J. Frank Zeigler.
Coatsburg.	Adams.	763	19	78.0	+ 1.4	104	3†	53	25†	33	3.41	- 0.67	1.55	0	6	23	5	3	s.	Dr. J. R. Lambert.
Cobden.	Union.	656	28	78.9	+ 0.2	103	4	53	25†	37	1.60	- 2.70	0.60	0	5	15	8	8	s.	John Buck.
Dakota.	Stephenson.	929	6	72.7	—	100	5	46	26	35	1.40	—	0.26	0	9	13	13	5	sw.	Rev. G. W. Kerstetter.
Decatur.	Macon.	685	20	76.6	+ 0.9	102	4	48	26	38	1.45	- 1.88	0.65	0	5	16	12	3	sw.	Prof. J. H. Conradt.
Dixon.	Lee.	725	21	75.2	+ 1.1	102	3†	47	26	38	3.38	- 0.53	0.97	0	7	19	9	3	—	H. U. Bardwell.
Du Quoin.	Perry.	459	23	78.4	+ 0.1	105	4	47	26	41	1.91	- 2.26	0.54	0	6	17	14	0	sw.	G. H. Kentzger.
Dwight.	Livingston.	600	18	75.4	+ 0.1	105	5	46	26	37	1.18	- 2.10	0.72	0	8	15	9	7	sw.	Edward O. Welch.
East St. Louis.	St. Clair.	418	—	—	—	—	—	—	—	—	0.62	—	0.34	0	6	—	—	—	—	W. McK. Brown.
Edwardsville.	Madison.	554	12	—	—	—	—	—	—	—	1.73	- 1.20	0.84	0	5	—	—	—	—	W. H. Morgan.
Elgin.	Kane.	716	4	74.9	—	101	5	48	26	35	1.86	—	0.71	0	6	7	21	3	sw.	Elgin Observatory.
Galva.	Henry.	842	19	75.4	+ 1.0	104	3†	48	26	34	3.99	+ 0.23	1.98	0	8	21	0	10	sw.	Prof. F. U. White.
Grafton.	Jersey.	422	18	—	—	—	—	—	—	—	2.17	- 1.88	0.72	0	7	—	—	—	—	R. C. Goodrich.
Greenville.	Bond.	635	33	77.8	+ 0.4	99	3†	53	26	30	1.47	- 2.19	0.66	0	5	18	8	5	se.	M. S. Oudyn.
Griggsville.	Pike.	650	26	78.0	+ 1.4	101	5	54	26	30	2.92	- 0.52	1.10	0	5	12	18	1	s.	George F. Kneeland.
Havana.	Mason.	475	19	79.0	+ 1.7	106	5	53	26	33	1.91	- 2.23	0.93	0	5	12	19	0	s.	F. and C. Borgelt.
Henry.	Marshall.	500	23	76.0	+ 1.5	102	5	47	26	33	3.25	- 0.38	1.44	0	6	21	5	5	se.	Dr. F. A. Powell.
Hillsboro.	Montgomery.	675	17	77.1	+ 0.6	104	3†	48	26	41	2.78	- 1.13	1.35	0	5	25	0	6	s.	Ira L. Woodward.
Joliet.	Will.	541	20	72.9	- 0.9	100	5	46	26	37	2.46	- 1.04	1.06	0	7	24	3	4	sw.	F. M. Muhlig.
Kishwaukee.	Winnebago.	730	23	74.4	+ 1.2	102	5	47	17†	41†	—	- 2.22	0.42	0	9	22	8	1	sw.	George Stephens.
La Grange.	Cook.	657	19	74.0	+ 0.9	101	5	48	25†	35	2.29	- 1.52	1.07	0	7	18	10	3	se.	Prof. F. E. Sanford.
La Harpe.	Hancock.	698	32	76.2	- 0.2	105	5	45	26	40	7.17	+ 2.61	1.97	0	8	22	9	0	se.	George E. Campbell.
Lanark.	Carroll.	883	22	73.4	+ 0.8	103	3†	41	26	47	3.42	- 0.70	1.08	0	10	26	3	2	sw.	M. N. Wertz.
La Salle.	La Salle.	536	33	75.4	+ 0.1	101	3	50	26	33	3.16	- 0.11	0.94	0	9	17	11	3	sw.	U. S. Weather Bureau.
Lincoln.	Logan.	482	23	75.0	- 0.9	98	4†	44	26	37	1.57	- 1.50	0.59	0	6	14	15	2	s.	Prof. C. S. Oglevee.
Loami.	Sangamon.	624	11	—	—	—	—	—	—	—	2.16	- 1.37	0.75	0	5	20	3	8	s.	H. C. Foster.
Manteno.	Kankakee.	711	—	—	—	—	—	—	—	—	1.80	—	1.41	0	8	24	4	3	sw.	J. F. Schmeltzer.
Martinton.	Iroquois.	633	24	75.2	+ 1.0	104	3†	45	26	40	0.80	- 2.55	0.43	0	5	19	8	4	s.	Joseph H. Peltier.
Mascoutah.	St. Clair.	425	21	79.0	+ 1.0	108	4	47	18†	44	1.58	- 1.84	0.53	0	7	18	11	2	se.	George Henrich.
Minonk.	Woodford.	745	18	76.6	+ 1.7	104	5	47	26	38	2.87	- 0.18	0.96	0	9	19	9	3	nw.	M. H. Pfaffle.
Monmouth.	Warren.	784	19	76.2	+ 1.4	106	3	46	26	36	4.12	- 0.19	1.00	0	8	22	1	8	s.	Dr. J. C. Hutchison.
Morrison.	Whiteside.	685	17	74.4	+ 1.1	105	5	46	26	39	3.06	- 1.75	0.99	0	12	20	11	0	s.	S. A. Maxwell.
Morrisonville.	Christian.	638	12	76.0	+ 0.8	100	3	44	26	39†	1.59	- 2.43	0.47	0	5	23	5	3	sw.	J. D. Lewis.
Mount Vernon.	Jefferson.	511	17	78.6	+ 0.8	104	3†	48	26	38	1.44	- 2.61	0.83	0	6	20	7	4	s.	Theodore P. Stelle.
Oregon.	Ogle.	702	2	74.6	—	101	3†	47	17	37	1.27	—	0.30	0	7	19	6	6	s.	Samuel Ray.
Ottawa.	La Salle.	500	25	76.2	+ 1.0	100	5	49	26	35	1.60	- 2.16	1.38	0	3	24	0	7	sw.	Miss Maude M. Harris.
Pana.	Christian.	692	25	77.4	+ 1.1	101	4	50	25	35	1.55	- 2.36	0.53	0	5	27	1	3	s.	C. W. Sibley.
Peoria.	Peoria.	609	33	75.0	- 0.4	100	5	46	26	34	2.58	- 0.39	1.03	0	7	10	18	3	s.	U. S. Weather Bureau.
Pontiac.	Livingston.	546	9	76.7	—	106	5	45	26	38	1.52	—	0.88	0	7	14	10	7	sw.	George Butterworth.
Riley.	McHenry.	956	52	73.8	+ 2.1	101	5	45	26	35	1.21	- 2.23	0.51	T.	6	12	16	3	sw.	John West James.
Roberts.	Ford.	774	—	—	—	—	—	—	—	—	1.64	—	0.72	0	5	16	12	3	s.	R. E. Bradbury.
Rockford.	Winnebago.	763	19	74.4	+ 0.5	102	5	49	26	32	0.81	- 2.74	0.25	0	7	20	5	6	—	Hosmer C. Porter.
Rushville.	Schuyler.	670	20	76.8	+ 1.1	100	4†	51	17	32	3.07	- 0.91	1.18	0	6	13	14	4	s.	H. F. Dyson.
Saint Charles.	Kane.	700	16	74.4	+ 0.7	101	5	46	26	39	1.66	- 1.91	0.63	0	6	17	13	1	sw.	Dr. William H. Bishop.
Saint Peter.	Fayette.	500	9	78.3	—	102	3†	46	26	43	0.72	—	0.42	C	2	15	14	2	sw.	M. L. Lansford.
Sparta.	Randolph.	538	25	78.5	+ 1.3	105	4	53	25	35	1.67	- 1.78	0.82	0	6	18	7	6	ne.	James A. Caldwell.
Springfield.	Sangamon.	644	33	77.2	+ 0.7	101	4	53	26	29	4.87	+ 1.97	1.50	0	8	11	16	4	s.	U. S. Weather Bureau.
Streator.	La Salle.	626	18	74.6	- 0.3	103	5	49	18†	38	2.44	- 1.36	0.90	0	7	25	0	6	sw.	Miss Lora Sweetser.
Sullivan.	Moultrie.	530	11	77.4	+ 1.6	104	4	50	25†	39	1.90	- 0.89	0.90	0	5	15	15	1	sw.	C. A. Corbin.
Sycamore.	De Kalb.	855	31	74.2	+ 2.1	106	3	46	26	42	2.65	- 0.99	0.95	0	6	23	2	6	sw.	Miss Edna J. Davis.
Tiskilwa.	Bureau.	798	27	—	—	—	—	—	—	—	3.27	- 0.84	1.17	0	8	—	—	—	—	F. I. Smucker.
Walnut.	Bureau.	717	20	75.4	- 0.2	103	5	47	26	36	3.11	- 0.88	1.12	0	10	20	10	1	s.	O. C. Nussle.
Warsaw.	Hancock.	501	13	—	—	—	—	—	—	—	5.26	+ 0.40	1.70	0	5	—	—	—	—	W. R. Kirkbride.
White Hall.	Greene.	573	3	73.6	—	104	3†	47	26	44	3.12	—	1.05	0	9	17	8	6	s.	Dr. R. A. Pritchett.
Windsor.	Shelby.	681	12	78.0	+ 2.5	104	4	45	26	41†	1.92	- 2.11	0.43	0	8	10	19	2	s.	Herbert Rose.
Winnebago.	Winnebago.	900	24	74.8	- 1.9	105	3	47	17†	41	1.09	- 2.63	0.30	0	8	25	4	2	sw.	Frank Osburn.
Yorkville.	Kendall.	584	24	72.4	- 0.5	100	5	43	24†	42	2.05	- 1.41	0.90	0	5	21	8	2	w.	Herman A. Grimwood.
Zion.	Carroll.	938	17	73.5	+ 1.5	103	5	46	22	41	5.29	+ 1.42	1.66	0	7	24	5	2	w.	Robert F. Gillogly.

* b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

** Temperature extremes are from observed readings of the dry bulb; means are computed from the observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted

TABLE 2.—Daily precipitation for July, 1911. District No. 5, State of North Dakota.

Stations.	Watershed.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
North Dakota.																																		
Amenia.....	Red.....		T.		T.				T.	.60						T.			T.	.05	T.			1.35	T.			T.					2.00	
Bottineau.....	Mouse.....								.44	.42	.05					.08			.44	.05	.12			.53	.08			.05	.02				.06	3.10
Cando.....	Sheyenne.....							.80	.12							T.			.36				.14		T.								.15	1.63
Crosby.....	Mouse.....	T.							.65	T.						.01	.07	.06	T.	.13			.09	.18				.20	.06				T.	1.31
Devils Lake.....	Sheyenne.....				T.	.01		.18	T.							.01	.07	.06	T.	.13			.09	.18				.20	.06				.33	2.04
Donnybrook.....	Mouse.....				T.				.08	.14	T.					T.	.52	T.	T.				.72	.04				T.	.23				.64	2.37
Dunsmuir.....	do.....																																	
Edmore.....	Sheyenne.....								.08							T.	.10		.09	T.			.10	.15	.14			T.			.02	.30	.08	
Forman.....	do.....	T.	.35		.22	.03			.44	.50	.25								.07				.35						.15					2.42
Grafton.....	Red.....	.02			T.				.42	.57	T.						.02			.14				.35	.06						.03		1.61	
Granville.....	Mouse.....								.02									T.	.59				.31	.39				T.					.66	1.97
Hannah.....	Pembina.....	.09			T.			1.01	T.						.14		T.					.26		.70				.07					1.27	
Hansboro.....	Red.....				.01			.02	.13	.31					.13							.25	.39	.04	.03			.02					.09	0.98
Hillsboro.....	do.....				.07			.44	.21							.09	T.		.37			.03	.16	1.05	.08								T.	2.50
Lakota.....	Sheyenne.....							T.	.20						.07	.19	.10		.90				.32	.18				T.	T.	T.	.18		T.	2.14
Langdon.....	Pembina.....	.08							.04	.07					T.	.10						.07	.61						.41				1.38	
Larimore.....	Red.....								.14	.31						.07		.02	.20	.30			.82	.05	.01					.03			1.95	
Lisbon.....	Sheyenne.....		.05	T.	.07				.63	.07											.32		.60	.07	T.			.08	T.				1.89	
McKinney.....	Mouse.....								.10	.03	T.								.33	T.			.60	T.				T.					1.06	
Manfred.....	Sheyenne.....															.04			.25			1.32	1.02				.03						2.77	
Mayville.....	Red.....		.39	T.				.41	.51							.17	.20		.47				.45	.39				.20					3.19	
Minot.....	Mouse.....							.05	.03										.30	T.			.79	.04				T.					1.21	
Minto.....	Red.....			.05	.02			.18	.57	.20					*	.13			.04	.10	.03		.09	.50				.19					.02	2.12
Oriska.....	Sheyenne.....				.10				.38	.20									.20	.14			.77	.53	.05			.08					.08	2.33
Park River.....	Red.....							.20	.45	.01					.01	.04	.02		.03				.10	.21			.23						1.29	
Pembina.....	do.....	1.80				T.		1.10	.13							.02					.08	.06		.02	.04				.02		T.		3.17	
Power.....	Sheyenne.....																																	
Pratt.....	Mouse.....				.03				.17										.29				.58										.56	1.63
Towner.....	do.....																		.96				.22	.47				.07					2.31	
University.....	Red.....				.16	.01		.72	.13							.09			.17				.25	.30	.11			.06		.01			.05	2.06
Wahpeton.....	do.....				.41			.13	.25	.20									.02				.31	.34				.73					.12	2.51
Walhalla.....	Pembina.....																																	
Westhope.....	Mouse.....				.04			.11											.20		.18		.19	.55									.03	1.34
Willow City.....	do.....																		.36				.13	.45									.23	1.17
Minnesota.																																		
Albert Lee.....	Mississippi.....					.45										.05					T.		.65	T.		.50	1.35					2.00	5.52	
Alexandria [I].....	do.....			T.	1.10	.50	T.				.54								T.	.30	.12		.12	.30	T.		.21					1.02	4.21	
Angus.....	Red.....				.39	.01		T.	.43	.15	.54					.14					.07		.80	.15		.04				.03			.07	2.28
Bagley.....	do.....	.15							.05							.26						.06	.25	1.00	.10		.50						.68	3.05
Beardsley.....	Minnesota.....	.05	T.																.30		.18		1.50	.05									2.61	
Beaulieu.....	Red.....				T.				T.	.10						T.	.15																	3.95
Bird Island.....	Minnesota.....				T.	.06			.08	.10									.80				.96	.01		.30							3.10	
Caledonia [I].....	Mississippi.....			T.	.92				.55	.40										.33		T.		.41	T.	.09			.08	.02				2.96
Campbell [I].....	Red.....				.47	.10	.20		.06	.50	.21								.04	.12	.24		.20	.10	.02								2.20	
Cass Lake [I].....	Mississippi.....																					.20												2.02
Collegeville.....	do.....				.06	.04			T.	.20					.02				.38		.12		.11	.02									.69	2.78
Crookston [I].....	Red.....	.03			.02	T.	.04		.27	T.						.12				.78			.40	.12									4.04	
Detroit [I].....	do.....		T.	T.	.23			.08	.20	.19						.04	.05			.15	.03		1.87	.32	T.			.88					4.04	
Ely.....	Rainy.....			T.	.10			.08	.20	.19					T.	T.	.01	.43	T.	.04		.02	.36	T.				T.	.67	T.	.23		4.20	
Fairmont (near).....	Minnesota.....	.04			.30	.04		.02	.23	.17	T.					.01	.43	T.	.05	1.00		.02	.36	T.									3.71	
Faribault.....	Mississippi.....																																	
Farington.....	do.....				.55	.08		T.	.16						.13				1.33	.06	T.		1.02	.05	T.			.43	.41	.05	.15		4.42	
Fergus Falls.....	Red.....				.48	.08			T.	.26	.12					.01			T.	.25		.33	.67	.89	.08			T.	.50		.03		4.10	
Fort Ripley [I].....	Mississippi.....				.57	.60	.16			.24	T.								.21	T.	.03		.09	.70	.09			.19					3.07	
Fosston.....	Red.....		.03						.01	.03	.01					.16				.07													2.07	
Fram.....	do.....	.15			T.	T.		T.	.48	.20	.07					.30				.13	.09		.10	.21	.02								1.75	
Glencoe.....	Mississippi.....									.35									1.75		.05		1.00					.30	.15				3.95	
Grand Meadow.....	do.....				.03	.08			.28										T.	.27	T.		.52	.03				.08	.43	T.			2.90	
Gull Lake Dam.....	do.....			T.	.80	.50			.03	.20									.25				.16	.11	.01								1.78	
Hallock.....	Red.....				.01			.20	.95	.45	.01									.12	.25		.05	.15	.30			.15					.02	2.66
Halstad [I].....	do.....	.02			.05	T.			.56							.10	T.	T.	.28	.08	.06		1.70	.11									2.96	
Hinckley.....	St. Croix.....				.31	.25													.29		.39													

TABLE 2.—Daily precipitation for July, 1911. District No. 5—Continued.

Stations.	Watershed.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Minnesota—Contd.																																		
Warroad.....	Rainy.....					T.			.05	1.35			T.		.10				.05		.30			.05				.15			.65	2.70		
West Concord.....	Mississippi.....																																	
Winnepago ||.....	Mississippi.....		T.	.47	.15	T.			.04	.05	.02						T.	.02						.40	T.				1.95	.06	.03	.55	3.74	
Winnibigoshish.....	Mississippi.....				.05					T.	.01					.22			.22		.29			1.84	.12				.31			.28	2.84	
Winona.....	do.....			.43	.04					.10						T.			.05	.36	T.			.40	.12	.02		T.	.26	T.		.30	2.08	
Worthington ||.....	Des Moines.....			.04	.04					.31	.01			T.		.07	.02		.09	.15				.13		.16			.33			.04	1.39	
Zumbrota.....	Mississippi.....																																	
S Dakota.																																		
Milbank ||.....	Minnesota.....			.26	.17					.41	.22								.03	.91	.24			.58	.04				T.			.52	3.18	
Wisconsin.																																		
Antigo.....	Wisconsin.....				T.	.34				.74	.36					.16	.03	T.	.16	1.43			.98	.20	T.				.41	T.	.20	.55	5.56	
Barron.....	Chippewa.....	.30		.43	1.03											.67			.80					.91		T.			.28		.24	3.90		
Beloit.....	Rock.....		*	.40						*						*								.29									1.40	
Big St. Germain Dam.....	Wisconsin.....		.20	.40	1.75				.72				T.	.33	.23			.37		.38				.84	.26	.03		.38	T.	.11	3.30	9.30		
Brodhead.....	Rock.....		T.			.16			.16						.12			.07					T.	.26	.03		.14					.01		
Burnett.....	do.....				.01	.07			.26	.03					.26	.04	T.	T.	.03	T.			.34	.22	.02		.02		T.			1.30		
Cottage Grove.....	do.....				.03	.59			.22	.01					.06	.02							.1	.22	.29		.03					1.62		
Darlington.....	do.....				.15	.40			.50	.10													.21	T.			.35				.15	1.90		
Deerskin Dam.....	Wisconsin.....			.55	1.20				.15						.26	.11			.23	.31	.32		.04	.70	.40		.50	T.	.22	1.28	7.13			
Delavan.....	Rock.....		.22		.06				.03				.01		.11			.15					.04	.05			.02				.93	1.64		
Dodgeville ||.....	do.....																																	
Downing.....	Chippewa.....			.60	.34				T.														.88	T.	.20		.10	.88	.10	T.	.20	3.30		
Eau Claire.....	do.....			.93	.31				T.	T.								.20	.51	T.			.6	.10	.14		T.	.75	T.	.16	.34	4.13		
Grand Rapids ||.....	Wisconsin.....		T.		.05	.15				.52	T.							.45			.04			.34	.54	.13	.02	.27	.07	.35		2.93		
Grantsburg.....	St. Croix.....			.18	.60				T.	T.								.75	.10				.95	.33	.28		1.13	1.45		.10	5.87			
Hancock.....	Wisconsin.....				T.				1.00	.10						.15		.08	T.				.70	.45	T.		.50		.15		3.13			
Hatfield.....	Black.....				.10			1.16									.02	.17	.33				.97		.22		.86	.49	.30	.80	5.42			
Hayward.....	St. Croix.....	*		.35	1.45											1.50		.15	.42	.12			1.37		.13		.25	.14		.23	6.09			
Hillsboro.....	Wisconsin.....	T.		T.	T.				1.11	.76								.21					.35	.10	.19		.45		.22	.81	4.20			
Koepnick.....	do.....			.25	1.10				.50	.30					.40		.20		1.10		.20		1.00	.30			.40		.20	.30	6.25			
Lac du Flambeau.....	Chippewa.....	.26		.21	.18				.33			T.			.25	.20		.55	.06	.37			.58	.20			.72	T.	T.	.78	6.48			
La Crosse.....	Mississippi.....		.01	.53	.02				.08	T.			T.					.43					.57	.03	.02		.26	.13	T.		.50	2.58		
Lake Mills.....	Rock.....		.26			.02			.12	T.													.18	.10	.14		.02				.04			
Lancaster.....	Mississippi.....				1.00				.85	.40						.17							.33	.13	.12		.71			.09	3.80			
Long Lake.....	Wisconsin.....		.09	.33	1.10				.28	.02					.16	.37			.21	.68	.28		1.02	.33	.03		.57	T.	.06	1.43	6.96			
Madison.....	Rock.....				.56	.02			.22	T.				T.		.11			.24	.43			.18	.02	.15		.05	T.	.37	1.68				
Mather ||.....	Wisconsin.....		T.		.12	.06			.13	.43									.37	.40			.37	.40		.13	.49	.02	.08		2.90			
Mauston.....	do.....								.75	.35								.03	.08	.27	T.		.55		.35		.34				2.74			
Meadow Valley.....	do.....			T.	.05				.02	.30									.08	.27	T.		.93	.12	.03		.52	.38	.06	.60	3.39			
Medford.....	Black.....			.68	.42				1.33	.30						.13	T.		.10				.70				.60	.25		.25	6.48			
Merrill.....	Wisconsin.....			1.70					.40	.10				.09			.10						.90				.70		.20		5.69			
Minocqua.....	do.....		.30	.53	1.48				.28						.21	.31			.42	.28	.47		.68	.30			.38			2.14	7.92			
Mondovi.....	Mississippi.....		.02	.29	.28	T.			.51										.21	.60	T.		.37	T.	.07		.06	.52	.08		12	3.13		
Mount Horeb.....	Rock.....			.24	.20				.40	.10													.25	.05	.20		.14	.21	T.		25	4.09		
Muscoda ||.....	Wisconsin.....					.37			.58	.46													.08	.20		.10					2.16			
Neillsville.....	Black.....				.10			.58											.65		.06		.60	.15			1.00	.48	.25		3.81			
New Richmond.....	St. Croix.....		.04	.54	.32				.25	.15								.78	.26	.06			.68	.07			.94		.22	.16	4.87			
Osceola ||.....	do.....		.02	.82					.25	.15					.07	.29			.58		.52		.73	.06	.05		.23	.03		.06	5.40			
Park Falls.....	Chippewa.....	.20							.30										.15	.24			.19	.47	.06		.05	.08	T.		1.37			
Portage.....	Wisconsin.....		T.		.12	.08			.40	.04							.07		.07	.15			.90	.24	.04		.35		.50		3.23			
Port Edwards.....	do.....	.11							.40														.04	.16			.06	.50			3.22			
Prairie du Chien ||.....	Mississippi.....		.40			.56			.08			.80	.64					.04					1.10				.39	.24		.34	4.69			
Prentice.....	Chippewa.....			.95	.85				.08						.03	.50			.71				.09	.48			.76	.15		2.33	9.31			
Rhineland.....	Wisconsin.....			1.01	1.00				.50	*				.17	.04	.50			.12	.42				.09	.48			.68			60	3.82		
Sauk City.....	do.....				*				2.00							*							*			.54		.68			21	2.51		
Shullsburg.....	Mississippi.....				T.	.60			.63	.07													.25	.48	.09		.58				1.30	6.70		
Solon Springs.....	St. Croix.....		T.	.275					.20	T.							.10						1.65	.20			.42	.17			21	4.28		
Spooner.....	do.....			.09	1.72				.56	.44									.52	.05			1.02	.04	.08		.42	.17			15	5.32		
Stanley.....	Chippewa.....			1.00	.49				.56	.44									.16	.63	T.	.35		.85	.5	.08		.43	.15		4	4.93		
Stevens Point.....	Wisconsin.....				T.	.65			2.10										.41		.06		.70				.38		.63		14	6.64		
Sugar Camp Dam.....	do.....		.08	.52	1.34				.48	.18					.42	.22			.51	.29			.52	.37			.51				6.54			
Twin Lakes Dam.....	do.....			.59	1.20																													

TABLE 2.—Daily precipitation for July, 1911. District No. 5—Continued.

Stations.	Watershed.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
<i>Iowa—Continued.</i>																																		
Earlham.....	Raccoon.....					1.00						.06	T.			T.							T.	.32									1.41	
Elkader.....	Mississippi.....				.50	.15				1.10	1.45			T.				T.						1.75					.97			.70	6.62	
Etma.....	W'psipinic'n.....			T.	.20	.02				T.	.03		.02			.65	.02	T.		T.	.35	T.		.58	.01			T.	.92		.85	3.63		
Estherville||	Des Moines.....			.18	.06	.05			.02	.15	.12						.05		.49	.06				.35	T.			.25		.08	.20	2.06		
Fairfield.....	Skunk.....																																	
Fayette.....	Mississippi.....																																	
Forest City||	Cedar.....				.08											.10					.13			.84		.04			.40			.27	1.86	
Fort Dodge||	Des Moines.....					.37				T.					.04		T.					T.		.20									.01	
Fort Madison.....	Mississippi.....					.01				.17											.12			1.22				2.50			.80	4.82		
Gilman.....	Iowa.....			.03		.48				.08		.32			T.	T.								.73				.93			.06	2.63		
Grand Meadow.....	Mississippi.....		T.			.41				.39	.70		.03			.03		T.						.70	.07	.03		.62	.03		.21	2.92		
Greene.....	Cedar.....																																	
Grinnell.....	Iowa.....				.47					.05		.28		.02		.04								.31				.57				1.56	3.30	
Grundy Center.....	Cedar.....			.22	.11											.11	.02	T.				.02	.01	.57	T.			.02				1.07		
Guthrie Center.....	Raccoon.....					T.				T.		.05	.10			.21							T.	.29				T.				T.	0.66	
Hampton.....	Cedar.....				.30										.08	T.			.02	.02	.02	.03	.07					.02			1.20	2.30		
Humboldt.....	Des Moines.....				.16																			.55			T.						0.82	
Independence.....	W'psipini- con.....				1.00		.22		1.62							.17	.17							.53	.06			1.25			.37	5.39		
Indianola.....	Des Moines.....			.19	.10	.25			T.		T.	T.	T.					.33						.13								1.00		
Iowa City ||	Iowa.....				.26		.05			.04	.87		.07				.06							1.19				.28	.88				3.70	
Iowa Falls ||	do.....				.78										T.	.13	.17		T.			T.		.43	T.			.03	T.			1.54		
Jefferson.....	Raccoon.....																							.08								0.08		
Keokuk.....	Mississippi.....				.67				1.91							T.				.26				1.15				1.16	.01		1.32	6.48		
Keosauqua ||	Des Moines.....				T.	.17				.80				T.			.02			.02	T.			.35	.29			1.74				3.41		
Knoxville.....	do.....			T.	1.08				T.		.45	T.				.05							.06	.62	T.				.0		T.	3.07		
Lacona.....	do.....				T.	.50					.01													.38				.27				1.17		
Le Claire ||	Mississippi.....				.40	T.	T.			.52	.10		.03			.02	T.							.59	.01	.06		.03	.87			2.63		
Marshalltown ||	Iowa.....			T.	.34	.70				.01	.07	.02	.03	T.		.09						.01	1.23	T.				.21	.15			2.77		
Mason City.....	Cedar.....									.10						.09								.38				.67				1.42		
Mount Pleasant.....	Skunk.....			T.					.15		.01			.02		.03								.95				.53	1.59			2.55	3.53	
Muscatine.....	Mississippi.....				.87					.70	.30					.08								.09	.57	.01		.18	1.55				4.35	
New Hampton.....	W'psipini- con.....				.24	.23				.26											T.			.86				.95	.02			.40	2.90	
Newton.....	Skunk.....																																	
Northwood.....	Cedar.....																																	
Olin.....	W'psipini- con.....					.39	.22			.61		.70				.10								.45				2.44				.85	5.67	
Oase.....	Cedar.....									.52														.75				.76				1.79	4.61	
Oskaloosa.....	Des Moines.....		.65							.33	.77					.15								.52				.54				2.90		
Ottumwa.....	do.....		.12			.20										T.							.32				.14				.13	0.91		
Pella.....	do.....			.05	.01		T.	.91		.19		.63				.15							T.	.40	T.			.24	.04			.22	2.84	
Perry.....	Raccoon.....									T.		.05				.31	.04							.78	T.			.03				1.21		
Plover.....	Des Moines.....		.07			.08		.20		.09	.06		T.		.10			.05		.05		.20		.05	.45							T.	1.35	
Pocahontas.....	do.....				.02		.12		T.	.03				T.	.03	.03		.02	.03		.57			.69								1.62		
Ridgeway.....	Mississippi.....			T.	.01					.19				T.		.06				.03	T.			.09	.53	.18		.36	.39			1.88	3.81	
Rockwell City.....	Raccoon.....				.45				T.	.15					.10								.35		T.							1.05		
Sac City.....	do.....			T.	.01					.80		.20			.05									.31								1.53		
St. Charles.....	Des Moines.....			.18		T.	.65				.15				.05									.01								1.04		
Sigourney.....	Skunk.....		T.	T.		.20				.08		.50			.09									.33				2.43			.03	3.68		
Stockport.....	do.....					T.			1.03	.06					.02									.90				.65	1.20			1.0	3.96	
Storm Lake.....	Raccoon.....		T.			.06		T.		.49				.08	.24			.19	T.			.04		.12	1.60							T.	2.82	
Stuart.....	do.....																																	
Tipton.....	Cedar.....					.28				.22		.04												1.02	.14			1.79			.52	4.01		
Toledo.....	Iowa.....			T.		.50			.17		.15			T.										.83	T.			.77		.12	.07	2.61		
Wapello.....	do.....				.03	.05	.14			.50	T.													.40				2.42	.41			3.95		
Washington.....	Skunk.....				.11					.10						.23								1.19				1.72				3.35		
Waterloo ||	Cedar.....				.25				T.	.63						.20	.05							.94	.07	.01		.55	1.36			3.35		
Waukeo.....	Raccoon.....				.02	.65				.01	.06					.03	.01							.66								3.35		
Waverly.....	Cedar.....				.73					.65						.45								.65				1.45				3.44		
Webster City.....	Des Moines.....				T.	T.	T.							.06		T.	T.	.16						.44								0.50		
West Bend.....	do.....			T.				.33		T.	.14					T.	.04							.27						.02	.03	0.99		
Whiteth.....	Iowa.....				T.	.30								T.										.58	T.			.16				1.04		
Winterset.....	Des Moines.....				T.	.12					.01	T.				T.	.03							.04								T.	0.40	
<i>Missouri.</i>																																		
Gorin.....	Mississippi.....									.09										.12				.88				.35	2.21		.12	3.77		
Hannibal.....	do.....					T.				.09				T.		.03			.08	.42	T.			.75				.02	.27		.88	2.58		
Louisiana.....	do.....					.03				T.						.25			1.05	T.				.40</										

TABLE 2.—Daily precipitation for July, 1911. District No. 5—Continued.

Stations.	Watershed.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
<i>Illinois—Contd.</i>																																		
Coatsburg	Mississippi					.20														.57				.74						.07	1.55	.28	3.41	
Cobden	do				T.						.21	.21	T.				.60				.39			T.	.15					.22	T.	T.	1.60	
Dakota	do					.10											.21			.01				.65	.01	.26				.23			1.40	
Decatur ||	Illinois										.21						.17				.24				.65						.18		1.45	
Dixon ||	Mississippi					.25					.57	.07					.21								.80		.38				.70		3.38	
Duquoin	do				T.						.10	.37					.29				.13		.29		.06					.54			1.91	
Dwight	Illinois						T.	.06									.01							.72		.06				.02		.08	1.18	
East St. Louis ||	Mississippi										.01	T.	.04				.10						.07		.34					.84			0.62	
Edwardsville	do										.10	.08									.23				.48								1.73	
Elgin	Illinois										.71						.21		.40					.47	.02	.05				T.			1.86	
Galva ||	do						.24	.06									.03								.77	.04	.01			.86			3.99	
Grafton ||	Mississippi										.12	.04					.60						.65	.04	.03	.69							2.17	
Greenville	do				T.							.07					.04				.66	T.			.62					.08			1.47	
Griggsville	Illinois					T.	T.				T.	T.					T.	T.			.37	T.			.72					.16	1.10	.57	2.92	
Havana	do										.15						.06								.93					.62			1.91	
Henry	do						T.					.67									.45				1.44		.25			.18	.26		3.25	
Hillsboro ||	Mississippi												1.35				.45					.08			.35					.55			2.78	
Joliet	Illinois					.90	T.			.05	.06	T.					.07				T.			1.06	T.	.11					.21		2.46	
Kishwaukee	Mississippi					.19					.42	T.					.02								.34	.04	.10				.13		.01	1.27
La Grange	Illinois											.12					.11	.05						1.07		.07		T.					2.39	
La Harpe	do					.53	.30				.33	.97												1.14						T.	1.97		1.47	7.17
La Mar	Mississippi					.20					.28	.80	.65		.05									.32	T.	.21				.79		.08	3.42	
La Salle	Illinois					.16	.43				.54	.06					T.				T.				.94	.05	.17				.28		.53	3.16
Lincoln	do						.07																	.59		T.				.03	.41	T.	T.	1.57
Loami	do										T.		.40				T.	.14			.27	T.			.75		T.			T.	.60		.02	2.16
Manteno	do						T.	.01				.12	T.				T.	.10				.06			1.41	.01	T.			.08	.01		1.80	
Martinton ||	do						T.	.21		.01			T.				.10				T.			.43		T.				.05	T.		.00	0.90
Mascoutah	Mississippi										.53	.40						.07				.04	.03		.31					.20			1.58	
Minonk	Illinois					.03	.96				.50	T.						.07							.90	.05	.21			T.	.10	T.		2.87
Monmouth	Mississippi					.74					.26	1.00					T.	.01							.97					.04	.35		.75	4.12
Morrison	do					.14	.09				.10	.03	.55		T.		.12								.99	.02	.19			.80	.01	.02	3.06	
Morrisonville	Illinois												T.								.29			.33	.07					T.	.47			1.59
Mount Vernon ||	Mississippi											.23	.02								.13					.10				.83			1.44	
Oregon	do					.30					T.	.21					T.	.20							.30		.20			.01	.05		1.20	
Ottawa	Illinois																							1.38		.11				.11			1.67	
Pana	Mississippi												T.				.53				.20	.09			.50					T.	.23		T.	1.55
Peoria	Illinois										.76	.03					.19					.01			.83	T.	T.			.14		.62	2.58	
Pontiac	do											.28						.02					.02		.88	.01	.15				.16			1.52
Riley	Mississippi					.23					.02	.51					T.				T.				.30	T.	.12			.03			1.21	
Roberts	Illinois												T.				T.				.29	T.	T.		.72	T.	.09			.04			1.64	
Rockford ||	Mississippi					.03					.25							.04			T.	.09			.23	T.	.11				.06			0.81
Rushville	Illinois										.13							.04			.40				1.18					1.07		.25	3.07	
St. Charles	do											.63	T.				T.	.12			.18				.52	.10	.11						1.66	
St. Peter	Mississippi											T.									T.				.30						.42			0.72
Sparta	do										T.	.05	.82					.28												T.	.32	.02		1.67
Springfield	Illinois										T.	T.	1.50				.29	.05						.43	T.		.60			.01	.75	1.24	4.87	
Streator ||	do					.50	T.	.05	.20															.60		.90		.10			.09			2.44
Sullivan	Mississippi											.33						.32							.90					.20			1.90	
Sycamore ||	do											.95						.70							.07					.03			2.65	
Tiskilwa	Illinois					.42	T.										.05								.91	.05	.11			.30	.26		1.17	3.27
Walnut	Mississippi					.28					.03	(*)	1.12				.01								.63	T.	.27			.48			.23	3.11
Warsaw ||	do					.44					1.70														1.15					1.14			.83	5.26
White Hall	Illinois					.10						.08					.29	.27							1.05					.06	.26			3.12
Windsor	Mississippi										.43	.05					.25							.03	.22		.42			.09			.43	1.92
Winnebago	do					.22					.10	.03					.04								.30		.15			.15				1.09
Yorkville	Illinois										.20		.40					.05							.90	T.				T.	T.			2.05
Zion	Mississippi					.50					1.05	1.52														.02	.04			1.66		.50	5.29	

* Precipitation included in that of the next measurement.
† Separate dates of falls not recorded.
|| Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or in elted snow.

TABLE 3.—Maximum and minimum temperatures for July, 1911. District No. 5.

Date.	North Dakota.												Minnesota.															
	Bottineau. §§		Devils Lake.		Lisbon. §§		Minot. §§		Pembina. §§		Collegeville.		Crookston. §§		Grand Meadow.		Montevideo. §§		Moorhead.		New Ulm. §§		Pine River Dam.		St. Paul.		Winnibigoshish.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	85	64	87	63	99	76	83	65	92	66	95	76	95	75	98	69	101	78	99	71	102	77	96	75	98	77	94	77
2....	80	55	83	57	89	62	83	57	88	50	93	72	78	66	102	72	89	70	78	61	99	69	92	69	99	71	92	69
3....	92	48	86	52	90	52	94	50	80	50	88	64	85	55	93	69	88	58	86	54	93	65	78	60	88	67	87	60
4....	56	48	88	59	94	61	86	60	84	58	89	63	87	60	102	68	103	65	88	62	102	68	89	64	93	65	83	63
5....	74	55	79	57	76	54	73	53	94	63	75	59	88	72	92	68	76	58	97	71	87	57	89	64	81	64	81	63
6....	87	46	81	48	76	45	86	44	80	51	80	55	81	52	85	60	82	50	82	51	84	58	77	50	80	59	83	57
7....	93	46	85	61	91	55	97	64	85	56	81	58	88	58	91	64	92	66	88	57	91	65	79	53	84	63	81	54
8....	87	60	89	62	102	67	79	63	88	59	91	74	99	67	93	68	99	72	100	67	97	70	92	70	94	73	92	69
9....	75	47	79	53	84	51	78	51	75	57	87	64	79	60	85	69	84	61	82	58	84	68	86	63	81	69	87	64
10....	74	50	79	54	85	54	79	54	75	54	81	59	82	62	93	52	87	56	85	59	87	58	74	60	86	60	83	60
11....	72	44	72	49	79	48	77	49	70	50	80	59	70	52	85	50	79	55	73	51	79	62	72	52	76	61	78	55
12....	75	46	76	48	84	42	78	49	74	46	78	55	77	50	86	48	84	50	80	46	82	53	78	56	80	54	73	56
13....	76	43	76	47	84	42	80	47	75	47	77	58	76	50	84	58	83	50	79	50	82	58	77	54	79	60	74	53
14....	83	46	82	51	89	46	86	48	79	50	83	58	81	53	86	54	89	51	84	50	92	54	80	49	84	57	79	50
15....	75	51	72	47	82	48	80	55	69	56	81	60	71	57	93	56	88	58	77	52	93	58	75	66	86	59	75	55
16....	73	40	70	40	79	41	76	41	68	39	70	48	71	43	76	48	76	46	73	43	84	56	72	65	69	51	70	48
17....	70	39	72	39	79	44	72	37	72	42	74	55	71	46	79	43	78	52	74	46	77	53	73	66	75	54	73	52
18....	69	48	69	51	73	54	71	50	78	46	73	53	70	53	73	49	80	55	69	54	66	50	68	58	64	55	70	49
19....	73	44	74	46	85	41	75	45	76	49	78	51	75	50	80	53	80	45	79	46	81	49	78	60	76	50	81	52
20....	70	48	70	51	78	54	74	50	74	50	78	57	72	55	86	50	82	54	74	55	82	60	75	68	82	55	71	51
21....	77	41	76	46	82	39	82	40	75	46	76	52	77	48	82	45	83	46	80	45	83	51	77	69	77	53	73	55
22....	66	47	72	48	85	42	72	48	75	49	85	52	80	50	89	49	90	53	84	50	92	54	84	73	86	54	79	47
23....	62	50	63	48	71	51	66	50	66	50	82	56	65	53	80	55	64	64	66	52	67	59	75	55	70	56	68	53
24....	70	44	68	49	79	49	71	48	70	48	65	48	67	49	75	46	70	50	70	50	62	49	63	46	64	46	64	47
25....	77	40	74	43	80	45	78	43	79	42	72	50	73	45	72	50	78	48	76	48	69	48	75	56	72	52	72	49
26....	91	50	86	51	80	44	93	50	82	45	79	53	83	50	81	47	87	50	86	47	86	49	78	54	79	52	78	48
27....	78	56	83	57	97	51	80	65	80	51	81	61	88	58	83	58	90	65	76	56	83	60	83	60	79	61	78	58
28....	76	43	78	52	88	52	80	50	77	51	81	62	81	55	84	59	88	60	82	56	78	53	75	55	83	61	79	61
29....	84	44	83	54	92	55	90	53	82	50	87	60	82	56	90	57	96	58	87	60	90	59	83	53	86	60	83	60
30....	78	53	78	55	99	54	79	51	78	52	94	59	85	60	93	66	100	65	94	64	96	64	92	57	93	64	89	60
31....	64	51	70	49	71	51	61	56	74	42	88	62	72	57	82	60	78	60	75	58	78	66	70	60	76	65	77	61
Mns..	77.0 ^b	48.1 ^b	77.3	51.1	84.7	50.7	79.3	51.2	77.2	50.2	82.0	58.7	78.6	55.0	86.1	56.9	85.6	57.3	81.2	54.4	85.1	59.0	79.1	59.8	81.5	59.6	78.9	56.6

Date.	Wisconsin.												Iowa.															
	Delavan.		Eau Claire.		La Crosse.		Madison.		Mauston.		Spooner.		Wausau.		Algona.		Cedar Rapids. §§		Charles City.		Davenport.		Des Moines.		Dubuque.		Keokuk.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	95	66	97	73	99	75	93	72	96	70	96	73	96	71	100	74	102	75	98	71	97	76	100	78	96	76	98	75
2....	98	70	98	74	103	77	96	75	97	74	94	62	99	73	101	78	105	77	102	73	98	78	102	78	98	78	100	76
3....	101	72	95	67	92	72	96	72	90	70	95	62	92	68	95	76	105	75	96	69	104	78	101	74	102	79	103	77
4....	100	66	89	66	100	70	98	69	93	67	92	61	87	62	104	76	106	79	104	71	102	79	103	77	101	75	102	79
5....	107	76	86	70	94	74	98	68	90	75	89	61	83	68	104	73	110	81	104	71	104	74	105	72	104	71	104	82
6....	86	68	84	63	84	65	79	65	80	64	80	55	83	67	88	61	89	71	86	64	90	71	87	70	85	72	89	71
7....	90	59	84	59	89	67	87	61	85	60	82	56	83	54	90	68	94	66	88	68	94	66	93	71	89	65	94	73
8....	97	65	93	72	94	73	91	68	95	64	90	71	94	65	94	76	94	68	92	72	92	73	92	75	92	73	92	75
9....	94	72	88	75	88	66	91	70	85	70	81	63	90	70	86	76	92	76	86	64	92	72	87	76	91	70	95	70
10....	92	69	89	56	92	62	88	68	80	66	83	59	86	59	96	76	92	68	93	60	92	71	98	69	92	71	94	69
11....	98	65	82	56	89	61	88	68	85	60	74	57	80	57	90	76	92	72	89	56	97	75	95	72	91	69	97	74
12....	84	52	81	51	82	53	76	59	75	52	77	46	76	56	87	76	83	63	85	49	83	66	86	65	80	60	88	70
13....	88	56	81	58	84	61	81	66	80	60	78	48	78	53	88	64	87	64	86	59	88	65	87	69	83	66	84	69
14....	86	48	84	52	84	53	79	62	80	62	81	47	78	48	91	54	89	59	88	52	86	63	90	61	86	59	89	64
15....	92	58	88	57	92	59	87	59	85	58	81	46	78	52	96	56	96	61	92	62	94	67	95	64	89	67	93	70
16....	81	55	71	50	74	53	71	58	75	50	70	44	72	46	78	54	77	61	75	51	78	60	78	61	73	60	80	66
17....	82	42	77	45	81	45	76	53	75	40	75	48	72	44	75	44	80	51	78	44	80	54	83	49	78	52	80	54
18....	83	54	69	50	70	54	77	60	74	54	74	47	75	50	78	65	85	54	78	53	82	62	79	59	80	62		

TABLE 3.—Maximum and minimum temperatures for July, 1911. District No. 5—Continued.

Date.	Hannibal, Mo.		Laporte, Ind.		Illinois.															
					Cairo.		Greenville.		La Salle.		Monmouth.		Mount Ver- non. §§		Peoria.		Springfield.		Winnebago.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	98	72	96	59	94	71	95	70	95	68	98	70	98	65	95	68	95	69	96	66
2.....	98	73	95	79	97	74	97	73	97	72	101	70	99	68	96	69	98	71	100	70
3.....	101	73	99	79	97	76	99	75	101	76	106	71	104	71	100	70	99	74	105	70
4.....	101	77	100	76	99	75	99	76	99	73	103	71	104	73	99	74	101	76	103	67
5.....	104	77	98	68	92	73	98	76	101	78	105	73	103	74	100	77	100	78	104	73
6.....	89	77	85	68	88	73	95	74	90	66	92	69	97	71	89	72	95	74	87	68
7.....	94	72	90	68	90	73	96	73	95	63	96	65	99	69	95	67	95	70	96	60
8.....	92	75	95	62	88	73	90	73	92	72	94	71	96	71	92	73	92	74	97	67
9.....	94	74	94	70	90	72	94	72	93	72	97	72	97	71	94	72	95	74	96	71
10.....	94	73	89	71	91	73	91	75	90	73	93	70	95	73	91	72	95	75	95	67
11.....	98	74	93	69	85	74	97	71	93	77	97	74	98	70	93	72	96	69	98	68
12.....	86	64	80	60	95	72	93	70	83	63	87	60	96	68	84	62	85	69	85	53
13.....	86	57	85	55	89	74	91	63	86	63	88	60	91	66	85	59	84	62	87	58
14.....	90	59	84	57	91	71	91	63	84	62	89	62	93	61	87	61	89	64	86	54
15.....	95	61	92	59	94	70	95	68	92	65	95	63	96	63	93	61	93	65	95	57
16.....	81	60	77	64	81	67	84	66	78	62	81	62	85	66	80	57	82	65	81	59
17.....	80	52	77	50	82	62	80	55	80	54	83	49	82	54	81	49	81	57	82	47
18.....	84	52	85	50	85	67	87	57	82	57	85	55	90	52	84	53	84	58	86	53
19.....	78	66	82	61	85	68	75	69	80	66	83	65	92	64	79	66	77	66	86	65
20.....	83	68	.....	.....	82	72	82	64	86	57	90	56	85	68	87	57	82	67	90	60
21.....	89	64	85	56	88	73	91	66	83	62	84	65	94	70	84	58	88	66	88	56
22.....	88	61	81	52	89	72	89	62	86	53	89	54	94	62	86	52	86	61	89	48
23.....	89	64	.....	.....	84	72	85	67	81	64	86	55	90	70	84	63	86	68	78	60
24.....	73	59	70	55	79	66	78	59	67	53	74	54	79	59	68	55	72	57	75	50
25.....	77	57	.....	.....	79	59	78	54	68	54	74	52	83	53	72	51	75	55	72	48
26.....	79	50	80	46	82	59	80	53	76	50	82	46	86	48	79	46	78	53	76	47
27.....	89	62	87	47	86	62	89	59	84	58	89	55	92	54	86	57	87	58	89	50
28.....	74	67	88	44	82	64	86	61	77	65	80	57	90	59	77	63	82	62	78	64
29.....	87	65	84	.....	74	66	84	67	85	65	90	62	83	65	87	64	86	67	92	57
30.....	89	68	89	.....	82	66	83	68	88	66	89	65	85	65	87	66	84	67	93	60
31.....	84	69	84	.....	83	68	85	66	85	65	85	67	88	68	86	66	85	67	90	66
Means.....	88.5	65.9	87.3	61.0	87.2	69.6	88.9	66.6	86.4	64.4	89.8	62.6	92.4	64.9	87.1	63.0	88.0	66.4	89.5	60.0

a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR JULY, 1911.

DISTRICT No. 6, MISSOURI VALLEY.

MONTROSE W. HAYES, District Editor.

GENERAL SUMMARY.

The month began with very hot and dry weather in all that portion of the drainage area lying in Missouri, Kansas, Iowa, eastern Nebraska, and eastern South Dakota. From day to day the temperatures rose gradually and the 4th and 5th were excessively hot. On the 6th there were some scattered showers in Kansas, Iowa, and southeastern Nebraska, and throughout the area covered by the heat wave there was a slight decrease in temperature, but there was no material change to cooler weather until the 9th, when showers, preceding an area of high pressure advancing from the northwest, were coincident with decidedly lower thermometer readings, and after the 9th moderately cool weather prevailed. In the western and northern parts of the district the entire month was cool and there were frequent local showers; the precipitation, however, was deficient, as most of the showers were light. In the country lying to the east of the foothills, where the rainfall was generally deficient in both May and June, scattered showers from the 9th to the end of the month gave considerable relief, but, with the exception of some localities in southern Nebraska and northern Kansas in which heavy rains fell, the country is still greatly in need of moisture. Corn and potato crops have been damaged both by the heat and the dryness, the hay crop was generally light, and pasturage is short. The streams in western Iowa are unusually low, and in some places there is a shortage of water for live stock. Like conditions have prevailed in South Dakota and, in addition to the injury sustained by the live-stock interests, the storage of water in irrigation reservoirs, mine milling, and the operation of trains on some of the railroads in the counties west of the Missouri River were interfered with. In a few restricted localities in Montana and South Dakota minor damage was done by the wind and hail accompanying thunderstorms.

TEMPERATURE.

Along the Missouri River from Sioux City to its mouth, in the valley of the Platte below the junction of the North Platte and South Platte Rivers, and over all of the watershed of the Kansas River except the part lying in Colorado, the mean temperature for the month was from 1° to 3° above the normal. On the 4th and 5th the daily departures were about 15° above the normal; on the other days of the hot period ending with the 9th they were not so great, but still were unusually high, and to the temperature excess accumulated during this period is due the moderate excess of the mean for the month over the normal, for the 10th and subsequent days were either very moderate, or were rather cool for the season. In South Dakota the weather during the last two decades was cool enough to give an accumulated daily deficiency just about sufficient to balance the excess for the first nine days. In North Dakota, Montana, Wyoming, Colorado, and over the western border of Nebraska there were

no well-defined periods either of warm or cool weather; both the lowest and the highest temperatures at the individual stations occurred on dates that varied widely, but during the greater part of the month the temperatures were more uniform than is usual in July, and were generally below the normal. At stations in Montana and Wyoming peculiarly situated for the occurrence of low temperatures freezing weather occurred on several days, but no damage resulted. In the country lying at a lesser elevation than 2,500 feet, or the part of the district affected by the hot wave, every station had thermometer readings of 100° or higher. The highest was 114° at Frankfort, Kans., on the 5th, and at numerous stations there were readings as high as 110°. The coolest weather in this region accompanied an area of high atmospheric pressure that moved from the upper portion of the Rocky Mountain slope to the middle and lower Mississippi Valley on the 24th to 26th. In the eastern counties of South Dakota and in western Iowa the 17th also was especially cool.

PRECIPITATION.

In Colorado there were two distinctly marked rainy periods, from the 2d to the 8th and from the 13th to the 19th. In the remainder of the district and especially in the portion to the east of the foothills showers were fairly general on the 9th and during the latter half of the month. On the 22d an atmospheric disturbance apparently developed in Kansas, and in moving in a northeasterly direction to the upper lakes it gave general rains on the 22d and 23d in all the district lying below the 2,000-foot contour. In several restricted areas in southern Nebraska and northern Kansas they were heavy, and at Beatrice, Nebr., there was a phenomenal fall of 11.05 inches in 24 hours. Despite the frequency of showers there was less than the normal amount of precipitation in more than nine-tenths of the drainage area. Most of the rain was of a distinctly local character and was light, and the period of deficient moisture that has prevailed in most of the district since May 1 is unbroken, except in the localities of northern Kansas and southern Nebraska, where the storm of the 22d and 23d was heavy, in parts of the Ozark country of Missouri, and in a few sections in the mountain or foothill region.

RIVERS.

The lower Missouri River was unseasonably low, but a higher stage prevailed than in June. The local rains over the streams in Nebraska and Kansas that flow into the Missouri between Omaha and Kansas City supplied most of the water that gave the increase. The streams in the Dakotas, northern Nebraska, and western Iowa that drain into the Missouri were low throughout the month, but as a rule they carried more water at the close than at the beginning of the month. There was a normal flow in the streams of the mountain country.

TABLE 1.—Climatological data for July, 1911. District No. 6, Missouri Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Wyoming.																				
Arapahoe.....	Fremont.....	5,500	2								0.12		0.12	0	1	13	18	0	sw.	A. E. Deitz.
Barnum.....	Johnson.....	5,500	6								0.65		0.65	0	1	27	4	0	w.	Thos. Freeguard.
Basin.....	Bighorn.....	3,862	12	69.0	- 4.9	97	7	42	9	49	0.13	- 3.28	0.13	0	1	27	4	0	nw.	O. J. Robertson.
Bennett.....	Carbon.....	7,500	2	58.1		83	13	28	13	55	0.28		0.23	0	3	20	10	1	w.	Chas. C. Young.
Big Creek Station ¹	do.....	7,500	2	58.1		83	13	28	13	55	1.02		0.19	0	8	6	12	4	sw.	U. S. Forest Service.
Burns.....	Laramie.....	5,400	2																	Alex. Hastie.
Casper.....	Natrona.....	5,101	2																	M. C. Cook.
Centennial.....	Albany.....	8,074	8	58.4		79	12	32	9	39	1.06		0.33	0	10	6	4	21	w.	Louis A. Gregory.
Cheyenne.....	Laramie.....	6,088	40	64.8	- 2.6	86	29	42	25	37	1.21	- 0.78	0.32	0	11	6	17	8	nw.	U. S. Weather Bureau.
Chugwater.....	do.....	5,282	10	66.8	+ 1.0	91	10†	33	9†	52	0.84	- 0.48	0.25	0	7	18	10	1	s.&w.	A. H. Woolever.
Clark.....	Park.....	4,320	5	68.6		95	7	45	8†	45	0.83		0.21	0	7	16	12	3	ne.	Chas. A. C. Snow.
Cody.....	do.....	5,000	4	67.2		91	7	43	23	42	0.35		0.06	0	8	17	7	7	w.	C. W. Dibble.
Crazy Creek.....	do.....	6,828	4	52.4		80	6	25	10	50	1.58		0.33	0	14	19	8	4	w.	Jas. Smith.
Dome Lake.....	Sheridan.....	8,821	3																	Abe Mills.
Douglas.....	Converse.....	4,793	2	68.7		95	7	37	24	44	0.28		0.23	0	2					Henry Miller.
Dubois.....	Fremont.....	6,909	4	57.7		83	11†	30	28	45	0.55		0.38	0	4	17	13	1	w.	Dr. F. H. Welty.
Eatons Ranch.....	Sheridan.....	4,600	6	66.8		97	7	41	9	46	0.98		0.50	0	4	21	10	0	n.	F. A. Eaton.
Echeta.....	Crook.....	4,200	2								0.50		0.30	0	3	26	4	1	n.	M. R. Hunter.
Elk Mountain.....	Carbon.....	7,322	2	63.0†		83	12	38	24	37†	1.15		0.48	0	9	11†	13†	1†	sw.	Wm. Richardson.
Encampment.....	do.....	6,400	2																	U. S. Forest Service.
Erray.....	Natrona.....	4,270	33	70.0	- 2.9	99	8	39	9†	46	0.47	- 0.94	0.22	0	5	20	11	0	w.	Frank Jameson.
Fort Laramie.....	Laramie.....	9,015	1	50.4		73	10†	23	9	49	1.39		0.37	0	13	9	21	1		John Hunton.
Fox Park.....	Albany.....	4,312	1	66.6		92	7	42	25	44	0.52		0.21	0	6	18	11	2	nw.	U. S. Forest Service.
Germania.....	Bighorn.....	4,510	1	67.8		95	7	42	9	43	1.25		0.53	0	7	21	8	2		L. E. Watson.
Gillette.....	Crook.....	5,372	19	64.8	- 3.2	89	7	38	9	45	1.08		0.31	0	5	22	7	2	w.	S. D. Perry.
Horse Creek.....	Fremont.....	8,000	5	53.8		78	29	28	24	43	1.73		0.45	0	9	27	2	2	w.	U. S. Forest Service.
Hunters Station.....	Johnson.....	4,632	12	67.6	- 2.0	98	5†	38	9†	49	0.04		0.04	0	1	19	7	5		Do.
Hyattville.....	Bighorn.....	5,050	1								1.90		0.94	0	8	16	14	1	se.	Wm. Booth.
Jireh.....	Converse.....	9,187	3	67.0		93	7	35	24	45	0.88	- 0.56	0.33	0	5	26	3	2	s.	P. L. Ford.
Kirtley.....	Park.....	4,500	2	49.2		70	6	27	2	37	1.26		0.40	0	8	15	15	1	w.	D. M. Zum Brunnen.
Kirwin.....	Crook.....	4,510	1								1.19		0.51	0	5					C. L. Tewksbury.
Knowles.....	Laramie.....	4,510	1								0.96		0.42	0	6	30	1	0	s.	Geo. A. Knowles.
Lagrange.....	Fremont.....	5,372	19	64.8	- 3.2	89	7	38	9	45	1.03	+ 0.17	0.97	0	3	17	13	1	w.	Owen Shupp.
Lander.....	Albany.....	7,188	20	61.4	- 1.0	85	12	36	9	45	2.31	+ 0.70	0.92	0	7	21	7	3	s.	U. S. Weather Bureau.
Laramie.....	do.....	6,878	10																	University of Wyoming.
Leo.....	do.....	7,052	7	44.9	-10.3	80	6			46	0.36	- 1.04	0.10	0	7	21	10	0	w.	C. A. Cowdin.
Lojabama Ranch.....	Park.....	3,825	6	67.0		93	7	39	9	46	1.07		0.33	0	7	10	17	4	nw.	Mary E. Painter.
Lovell.....	Bighorn.....	5,007	21	65.8	- 2.3	91	7†	35	8	54	1.29	- 0.13	0.80	0	4					R. Fred Harrison.
Lusk.....	Converse.....	5,050	1								1.10		0.35	0	7	16	13	2	se.	D. E. Goddard.
Manville.....	Albany.....	6,000	10	64.2	0.0	87	5†	31	9	49	1.53	+ 0.02	0.91	0	8	4	22	5	e.	C. A. Sherman.
Moore.....	Weston.....	4,319	4	69.9		97	7	38	24	44	0.58		0.37	0	4	22	8	1	s.	Edwin Moore.
Newcastle.....	Natrona.....	5,735	5	68.4		92	12	40	12	52	0.81		0.45	0	5	17	14	0	sw.	Dr. S. W. Johnson.
Pathfinder.....	Laramie.....	4,900	8								1.48		0.72	0	9					U. S. Reclamation Service.
Phillips.....	do.....	5,038	9										0.31	0	10	10	18	3	nw.	Crs. Arthur Rugg.
Pine Bluff.....	Park.....	4,376	4	67.0		92	7	39	10	46	0.82		0.46	0	7	21	10	0	ne.	C. L. Beatty.
Powell.....	Carbon.....	6,748	9	65.2	- 1.3	89	4†	41	9	43	0.57	- 0.48	0.40	0	2	10	19	2	e.	U. S. Reclamation Service.
Rawlins.....	Fremont.....	4,900	2	66.8		90	14†	40	9	47	1.60		1.40	0	2	10	19	2	e.	E. J. Ehrenfeld.
Riverton.....	Crook.....	6,785	13	62.4	- 3.2	88	11†	34	9	50	1.15	- 0.78	0.37	0	7	21	7	3	s.	F. H. Allyn.
Rocky Point.....	Carbon.....	3,790	16	63.8	- 3.4	97	7	36	24	31	0.99		0.27	0	9	8	14	2	sw.	P. Woxen.
Saratoga.....	Sheridan.....	5,385	5	67.0		92	6	47	31	36	0.42		0.20	0	3	18	12	1	w.	G. Frederick Clark.
Seven Mile Creek.....	Park.....	4,635	19	67.4	- 0.9	92	4†	39	9	48	0.95	- 0.15	0.30	0	8	21	0	10	s.	U. S. Forest Service.
Shoshone Dam.....	Johnson.....	7,873	9	54.9		78	11	24	9	47	1.09		0.52	0	8	18	8	5	sw.	U. S. Weather Bureau.
Soldiers Home.....	Fremont.....	4,350	7	70.2		98	25	41	9	55	0.29		0.07	0	6	18	12	1	sw.	U. S. Reclamation Service.
South Pass City.....	do.....	6,500	2								0.52		0.33	0	7	5	26	0	w.	Geo. L. Courtney.
Thermopolis.....	Park.....	4,360	2								0.85		0.43	0	4	14	16	1	se.	John Sherlock.
Valley.....	Sheridan.....	69.6				93	7	40	24	44	1.14		0.58	0	8	19	8	4	s.	A. L. Duhig.
Verona.....	Laramie.....	7,400	1								0.66		0.40	0	5	14	16	1	sw.	Jas. L. McLaughlin.
Wheatland.....	Carbon.....	7,400	1								2.84		1.05	0	9	21	8	2	sw.	O. A. Roode.
Windsor Ranch.....	Sheridan.....	69.8				98	7	43	9	48	0.58		0.25	0	6	9	17	5	n.	A. deF. Snively.
Woodrock.....	Bighorn.....	4,207	1	68.4		93	29	38	9†	48	0.75		0.23	0	8	22	8	1	e.	Ira G. Wiant.
Woodland.....	Laramie.....	6,200	23	57.6	- 3.9	81	25	34	9	40	0.97	- 0.21	0.36	0	10	15	13	3	sw.	U. S. Forest Service.
Wyndote.....	Yellowstone Park.....	7,220	5	53.0		79	14	26	10	49	0.10		0.10	0	1	25	0	6	e.	Harry S. Smith.
Yellowstone Park.....	do.....	7,900	4	52.6		78	6	27	10	46	0.95		0.60	0	10	15	15	1	sw.	U. S. Reclamation Service.
(1) Fountain.....	do.....	7,733	7	51.8		75	16	27	9	38	0.93		0.30	0	3	20	7	4	sw.	U. S. Weather Bureau.
(2) Gallatin.....	do.....	7,525	5	52.7		81	14†	26	10	53	1.35		0.70	0	8	27	0	4	w.	Do.
(3) Grand Canyon.....	do.....	6,500	5	52.7		81	14†	26	10	53	1.35		0.26	0	8	22	6	3	w.	Do.
(4) Lake Yellowstone.....	do.....	7,000	6	53.4		82	6	20	24	60	1.02		0.33	0	9	23	0	8	w.	Do.
(5) Norris.....	do.....	7,000	4	54.6		82	6	20	24	60	1.02		0.33	0	9	23	0	8	w.	Do.
(6) Norris.....	do.....	7,772	5	54.4		82	17†	28	10†	49	0.83		0.40	0	4	25	4	2	sw.	Do.
(7) Soda Butte.....	do.....	6,250	2	55.8		84	6†	22	10	52	1.16		0.27	0	10	13	10	8	nw.	Do.
(8) Sylvan Pass.....	do.....	7,395	7	54.5		82	17	21	23	51	T.		T.	0	26	2	2	e.	Do.	
(9) Thumb.....	do.....																			Do.
(10) Tower Falls.....	do.....																			Do.
(11) Upper Geyser Basin.....	do.....																			Do.
Montana.																				
Adel.....	Cascade.....	5,200	13	58.9	- 1.5	87	25	32	5	43	2.46	+ 0.44	0.86	0	10	14	12	5	w.	Mrs. B. F. Burch.
Agricultural College.....	Gallatin.....	4,700	14																	Prof. E. Burke.
Augusta.....	Lewis and Clark.....	4,071	13	58.8	- 3.2	92	25	31	31	53	0.91	- 0.98	0.42	0	4	26	4	0	w.	C. C. Covington.
Babb.....	Teton.....	4,461	5	55.6		81	14†													

TABLE 1.—*Climatological data for July, 1911. District No. 6—Continued.*

Locations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Montana—Continued.																				
Canyon Ferry.	Lewis and Clark.	3,644	13	65.6	- 2.3	92	6	40	9	43	1.08	- 0.35	0.46	0	6	22	6	3	nw.	A. C. Pratt.
Cascade	Cascade	3,361	7	63.8		94	25	37	24	52	1.18		0.46	0	9	23	7	1	sw.	Dr. E. E. James.
Chesterman Reservoir.	Lewis and Clark.	5,275	3	55.4		82	6	32	31	37	1.18		0.42	0	7	24	4	3	w.	C. D. Schmidt.
Chester	Chouteau	3,140	7	63.4		96	6	35	31	48	1.42		0.80	0	8	16	11	4	nw.	E. D. Keith.
Chinook	do.	2,502	13	66.5	- 3.5	97	5	42	24	51	1.31	- 0.11	0.60	0	4				w.	T. O'Hanlon Co.
Chouteau	Teton	2,810	7																	T. J. Moore.
Clearcreek	Chouteau	3,810	6	62.9		92	6	41	11	46	2.64		0.87	0	7	20	9	1	w.	Cortez Sedgewick.
Clemons	Lewis and Clark.	4,672	2								1.47		0.57	0	10	10	16	5	w.	Frank Eberl.
Clydepark	Park		1								0.76		0.22	0	10	16	10	5	w.	Dr. T. B. Marquis.
Conrad	Teton		1	62.0		95	25	37	7	52	0.65		0.35	0	5	19	11	1	sw.	I. S. Martine.
Copper	Meagher		6								0.94		0.38	0	4	24	5	2	w.	O. Harris.
Crow Agency	Rosebud.	3,041	30	67.2	- 3.7	97	7	36	24	55	1.01	- 0.19	0.33	0	9	16	0	15	w.	H. R. Bamber.
Culbertson	Valley	1,927	8	68.5	+ 0.8	103	7	41	6	55	0.95	- 1.11	0.28	0	9	8	21	2	nw.	G. H. Coulter.
Cummings	Carbon.		1	57.7		84	6	29	9	49	1.16		0.54	0	3	17	13	1		J. W. Brimmer.
Cut Bank	Teton	3,700	12	61.2	0.0	90	6	35	31	47	0.35	- 1.28	0.21	0	2	25	4	2	w.	C. N. Thomas.
Decker	Rosebud.	3,400	7																	A. Anderson.
Denton	Fergus	3,500	3	64.9		96	6	40	5	39	0.70		0.29	0	6	20	5	6	nw.	P. J. Greisenauer.
Dillon	Beaverhead	5,147	14	62.6	- 1.5	87	4	34	29	52	0.56	- 0.54	0.10	0	12	15	8	8	sw.	Prof. J. E. Monroë.
Dirty Creek	Meagher	6,000	2								1.61		0.76	0	13	23	7	1	w.	Lewis Cameron.
Dry Creek	Broadwater	5,500	2																	J. C. Stuart.
Dry Wolf Camp.	Cascade	6,000	2								1.40		0.37	0	12	9	14	8	sw.	Mrs. R. J. Eveleth.
East Gallatin River.	Gallatin	6,000	3								1.84		0.75	0	10	20	9	2	w.	John Eberhart.
Ekalaka	Jefferson	6,576	3	68.6	- 0.9	102	7	32	24	47	1.45	- 0.06	0.94	0	6	28	0	3	w.	William Freese.
Elkhorn	Jefferson	4,900	4								0.70		0.35	0	8	11	19	1	sw.	Jas. Heagan.
Evans	Cascade	2,208	7	67.0		103	7	36	24	50	1.18		0.94	0	3	15	13	3	ne.	H. Thrasher.
Fallon	Custer	8,500	2	54.2		76	17	30	26	45	0.61		0.26	0	3	18	8	5	ne.	Mrs. A. C. Gifford.
Fish Creek	Gallatin	6,000	2	59.2		90	7	34												

TABLE 1.—Climatological data for July, 1911. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
North Dakota—Contd.																				
Edgeley	Lamoure	1,468	10	68.0	- 0.1	96	8	39	16†	48	1.76	- 1.08	0.38	0	8	7	21	3	nw.	O. A. Thompson.
Epping	Williams		4								0.49		0.30	0	5	22	9	0	n.	M. E. Uggan.
Fullerton	Dickey	1,439	13	67.0	- 0.5	102	8	39	17	47	1.75	- 1.37	0.41	0	7	21	9	1	s.	F. O. Alin.
Garrison	McLean		2	65.6			25	36	17	54	2.02		1.43	0	4	15	12	4	nw.	G. L. Robinson.
Haley	Bowman		4	66.0		103	7	33	25	55	0.46		0.31	0	2	25	3	3	nw.	A. M. Oberchain.
Hettinger	Adams	2,253	5																	W. R. Lanxon.
Howard	Divide	2,275	5																	C. P. Amsbaugh.
Jamestown	Stutsman	1,390	24	64.6	- 4.6	90	7	40	16	35	2.96	+ 0.37	1.20	0	11	20	1	10	nw.	Thos. Pettigrew.
Lamoure	Kidder		4	62.9		96	7	35	16†	52	1.09		0.47	0	5	11	18	2	nw.	E. V. Virgin.
McHenry	Foster	1,509	2	62.8		89	4	36	16	38	3.70		1.00	0	5	11	9	11	nw.	John Knox.
Manfred	Wells	1,605	10	63.6		94	7	23	16	62	2.77		1.32	0	6	10	12	9	nw.	P. B. Anderson.
Marmarth	Bowman		4																	S. P. Grane.
Marstonmoor	Stutsman		4	58.3		86	7†	27	15	46	2.05		0.50	0	6				nw.	H. H. McCumber.
Medora	Billings	2,225	15	67.3	- 3.0	107	7	36	8†	61	1.29	- 0.73	1.07	0	2	24	4	3	e.	J. W. Hesser.
Melville	Foster	1,509	14	67.6	+ 0.7	94	4	38	16†	45	1.76	- 1.09	0.53	0	5				nw.	F. J. Kidder.
Mott	Hettinger		5	66.3		100	7	36	24	43	1.21		0.96	0	5	15	14	2	nw.	O. H. Opland.
Napoleon	Logan	1,955	20	66.5	- 1.9	97	29	34	24	47	0.80	- 1.72	0.36	0	8	20	6	5	nw.	C. J. Hoof.
New England	Hettinger	2,400	16	68.6	+ 0.2	107	29	35	25	54	1.30	- 0.45	1.00	0	2	18	9	4	nw.	J. L. McGovern.
New Rockford	Eddy	1,531	2								2.17		1.05	0	5				nw.	J. V. M. Sundberg.
New Salem	Morton	2,163	5	67.2		102	7	39	19	42	1.80		1.06	0	6	15	14	2	nw.	J. Christianson.
Orange	Adams		3	66.0		104	7	34	25†	64	0.79		0.35	0	3				nw.	J. E. Goforth.
Schafer	McKenzie		3																	V. G. Morris.
Steele	Kidder	1,857	16																	B. C. Smith.
Washburn	McLean	1,731	8	67.8		98	7	41	17	44	1.47		1.11	0	3	15	14	2	w.	W. R. Peterson.
Williston	Williams	1,875	32	64.8	- 4.6	98	7	41	19	45	1.21	- 0.82	0.62	0	9	17	11	3	n.	U. S. Weather Bureau.
South Dakota.																				
Aberdeen	Brown	1,300	21	68.4	- 2.7	100	8	44	25	43	5.33	+ 2.30	1.25	0	9	21	4	6	nw.	D. G. Gallett.
Academy	Charles Mix		12	73.0	- 0.8	102	4	49	24	37	3.61	+ 0.25	1.54	0	13	18	12	1	se.	I. T. Lothrop.
Alexandria	Hanson	1,352	22	74.4	+ 1.7	106	3	46	21†	44	2.25	- 1.03	1.22	0	5	26	3	2	nw.	Albert Hill.
Ardmore	Fall River	3,557	2								1.07		0.41	0	7	14	9	8		Chic. Burl. & Quincy R. R.
Armour	Douglas	1,521	15	75.2	+ 1.8	109	4	47	24†	44	2.00	- 1.36	0.70	0	5					T. J. Markey.
Bellefourche	Butte	3,000	3	68.8		103	7	38	25	51	0.42		0.20	0	4				se.	U. S. Reclamation Service.
Brookings	Brookings	1,636	22	70.8	+ 1.3	98	1†	41	21	46	3.32	+ 0.93	0.71	0	7	13	16	2	nw.	Experiment Station.
Camp Crook	Harding	3,000	19	68.6	- 1.0	102	7	36	25	49	0.97	- 0.79	0.57	0	5	23	7	1	nw.	U. S. Forest Service.
Canton	Lincoln	1,248	16																	John H. Halsey.
Cascade Springs	Fall River	3,422	3	69.8		94	7†	40	9	48	2.01		1.12	0	10	19	10	2	w.	Fred Noerenberg.
Castlewood	Hamlin	1,685	5	68.2		99	1	38	21	45	2.67		0.74	0	10	11	7	13	nw.	M. N. Bradley.
Centerville	Turner	1,229	14	72.4		104	4	45	17†	42	2.78	- 1.89	1.18	0	9	15	16	0	nw.	Frank Williams.
Clark	Clark	1,779	17	68.6	- 1.1	99	1†	42	21	41	2.35	- 0.37	0.76	0	9	18	12	1	nw.	O. H. La Craf.
Cottonwood	Stanley	2,414	3	73.8		100	20†	42	9†	47	0.59		0.40	0	5	20	10	1	se.	Experiment Station.
Custer	Custer	5,316									0.42		0.17	0	6	6	13	12	w.	R. P. Innes.
Davidson	Perkins		2	67.0		102	7	32	25	55	0.95		0.50	0	4	14	13	4	nw.	G. G. Davis.
Deadwood	Lawrence	4,535	2	64.8		94	7	36	25	48	1.40		0.70	0	3	25	5	1		R. E. Grimshaw.
Deerfield	Pennington	6,000	2								0.94		0.24	0	8	14	15	2	nw.	Frank E. Miller.
De Smet	Kingsbury	1,726	18	71.5	+ 1.2	100	1	42	21	45	2.87	+ 0.40	0.95	0	5	24	5	2	nw.	J. O. Purinton.
Dowling	Stanley	2,250	2	73.5		103	7	45	24	45	1.65		0.60	0	6	21	8	2	se.	M. P. Dowling.
Dumont	Lawrence	6,195	2								1.06		0.38	0	6	21	7	3	sw.	A. B. Wood.
Fales	Potter										4.49		2.17	0	10	21	9	1	nw.	A. H. Peterson.
Elk Mountain	Custer	4,700	2								1.27		0.33	0	9	20	6	5	nw.	James E. Blaine.
Elk Point	Union	1,127	12	74.6	+ 0.3	106	4	47	17†	47	2.27	- 0.93	1.30	0	6	20	7	4	n.	G. W. Freeman.
Ellington	Perkins																			A. C. Ellington.
Englewood	Lawrence	5,723	2								0.32		0.20	0	9	15	10	6	sw.	T. J. Cummins.
Eureka	McPherson	1,884	2	70.2		100	4	41	25	44	0.45		0.27	0	5	24	1	nw.	Experiment Station.	
Faulkton	Faulk	1,595	16	72.1	+ 1.5	103	30	46	21	41	1.14	- 1.54	0.38	0	9	22	6	3	nw.	Miss Belle Talcott.
Flandreau	Moody	1,565	21	70.8	+ 1.2	101	4	43	21	41	2.15	- 0.76	0.85	0	6	13	9	9	n.	W. A. Harris.
Forestburg	Sanborn	1,231	19	72.2	+ 0.6	107	1	45	25	48	3.19	+ 0.41	1.05	0	10	22	8	1	se.	S. S. Judy.
Frederick	Brown	1,377	3																	J. E. Jeffers.
Ganvalley	Buffalo		13	74.0	+ 0.5	106	1	40	13	49	2.71	- 0.90	0.96	0	8	14	17	0	nw.	V. P. Drips.
Greenmont	Lawrence	6,430	2								1.75		0.80	0	4	24	6	1	s.	H. C. Hoffbahr.
Greenwood	Charles Mix		17	75.7	+ 1.0	107	4	49	25	39	1.98	- 1.60	1.22	0	5	23	7	1	s.	T. C. Williamson.
Hardy Ranger Station	Lawrence	6,600	2								1.62		0.82	0	6	21	4	6		Mrs. E. A. Gundlach.
Harveys Ranch	do	6,282	1								2.02		0.80	0	6	19	10	2	nw.	Jerome Harvey.
Hermosa	Custer	3,278	5	75.0		102	7	40	24	45	0.18		0.10	0	2	17	14	0	s.	S. M. Booth.
Highmore	Hyde	1,890	15	71.6	- 1.5	102	1	44	25	44	2.69	+ 0.15	1.75	0	8	19	7	5	s.	Experiment Station.
Hopewell	Stanley		1	71.6		101	26	43	28	47	2.27		0.76	0	9	17	11	3		E. R. Myers.
Howard	Miner	1,564	19	70.4	+ 0.4	103	4	40	19†	45	2.95	- 0.16	1.21	0	7	17	13	1	se.	J. J. Cox.
Howell	Hand		9	71.2		107	1	43	25	49	2.14		0.68	0	11	17	13	1	se.	M. A. Shuster, Jr.
Huron	Beadle	1,306	29	70.7	- 0.8	100	1†	39	26	39	3.26	+ 0.32	1.01	0	9	16	12	3	s.	U. S. Weather Bureau.
Ipswich	Edmunds	1,530	14	69.2	- 1.5	103	30	37	26	55	1.69	- 0.63	0.50	0	6	24	7	0	nw.	J. B. Taylor.
Kadoka	Stanley	2,467	2	72.4		101	28	49	9†	39	1.48		0.52	0	6	15	13	3	nw.	Rev. D. S. Brown.
Kennebec	Lyman	1,689	18	72.8	- 0.1	103	1	41	25	44	1.54	- 0.52	0.62	0	6	26	5	0		R. C. Van Horn.
Kidder	Marshall	1,295	7	67.8		102	1	41	24	37	4.27		1.36	0	8	26	2	3	ne.	H. C. Schussler.
Kimball	Brule	1,788	22	71.8	- 1.0	100	4	46	25	40	4.43	+ 1.66	2.29	0	9	25	5	1	se.	G. D. Rose.
La Creek	Bennett																			Walter E. Baker.
La Delle	Spink	1,400	14	71.2	- 0.4	105	1	39	25	39	3.22	- 0.34	0.80	0	8	18	6	7	nw.	E. L. Ebbert.
Lead	Lawrence	5,200	2	65.8		90	7	40	24	36	1.24		0.80	0	4	7	22	2	nw.	E. F. Irwin.
Manderson	Shannon			70.8		98	26†	37	24†	55	0.64		0.36	0	7	12	16	3	n.	W. A. Spencer.
Marion	Turner	1,447	10	72.7	+ 0.7	103	4	46	25	38	3.25	- 0.28	1.56	0	9	10	20	1	se.	M. H. Dains.
Marston	Sully		3	70.4		103	4													

TABLE 1.—Climatological data for July, 1911. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast cloudy days.		
South Dakota—Contd.																				
Redfield	Spink	1,295	13	66.4	- 3.9	104	1	35	25	48	3.51	+ 0.64	1.83	0	6	23	0	8	n.	A. S. Hall.
Rochford	Pennington	5,228	1								1.05		0.32	0	8	12	11	8	w.	Mrs. M. E. Deffenbaugh.
Rosebud	Todd	2,600	17	71.4	- 2.2	99	30	35	25	46	1.05	- 1.65	0.24	0	11	14	15	2	sw.	W. M. Ege.
Rosebud Agency	do.	2,600																		C. W. Soldier.
Roslyn	Day		5	67.2		100	30	42	25	40	3.61		1.07	0	13	17	12	2	nw.	O. O. Floren.
Selby	Walworth		3	72.4		98 ^b	4	44 ^b	25	38 ^b	1.86		1.16	0	4	21	8	2	nw.	Miss Gertrude Hall.
Sioux Falls	Minnehaha	1,400	20	72.6	+ 0.8	103	4	47	24 ¹	40	4.50	+ 1.31	2.34	0	10	17	10	4	nw.	J. H. Bechtold.
Sorum	Harding		100	7		100	7	38	25	48	0.48		0.30	0	4	23	4	4	nw.	M. S. Eberhart.
Spearfish	Lawrence	3,647	21																	O. A. Martin.
Stephan	Hyde	1,840	7	70.5		101	1	43	25	42	4.17		1.42	0	11	9	18	4	se.	Rev. A. Mattingly.
Tama	Meade		2																	J. J. Daly.
Tyndall	Bonhomme	1,418	14	73.9	- 0.3	104	1 ¹	49	24	40	2.69	- 0.70	1.81	0	9	9	21	1	se.	F. F. Chladek.
Vale	Butte	2,765	3	71.3		104	7	36	25	48	0.58		0.36	0	5	19	9	3	nw.	U. S. Reclamation Service.
Vermilion	Clay	1,222	10	74.7	+ 0.4	102	4	49	19 ¹	37	2.03	- 2.79	1.05	0	8	24	5	2	nw.	Prof. E. C. Perisho.
Waters Ranch	Lawrence	4,000	1								0.64		0.27	0	7	13	15	3	nw.	George Waters.
Watertown	Codington	1,735	17	68.4	+ 1.1	100	1	40	19 ¹	44	1.87	- 1.33	0.70	0	7	23	4	4	n.	Robert Q. Wood.
Wentworth	Lake		18	71.0	+ 0.6	102	4	45	19	38	3.09	+ 0.21	1.04	0	8	24	5	2	n.	R. C. Zimmerman.
Wessington Springs	Jerauld	1,410	11	72.3	+ 0.1	103	4	47	24	41	3.08	+ 0.24	1.42	0	11	13	18	0	s.	Mrs. N. J. Dunham.
White Lake	Aurora	1,646	2								2.94		1.25	0	6	19	12	0	s.	Mrs. G. A. Rogers.
Winner	Tripp	2,500																		A. L. Rawson.
Yankton	Yankton	1,234	37	73.4	- 1.2	102	4	51	24	34	2.86	- 0.66	1.54	0	10	8	21	2	s.	U. S. Weather Bureau.
Minnesota.																				
Pipestone	Pipestone	1,710	11	68.6	- 0.7	98	4	42	27	42	2.41	- 0.87	0.75	0	7	13	17	1	nw.	W. S. Campbell.
Colorado.																				
Akron	Washington	4,650	9								1.39		0.66	0	5					Ira M. Barnhouse.
Albion Lake	Boulder										4.15		0.75	0	17	6	17	8	e.	Fred R. Dungan.
Alma	Park	10,238	14																	Anna B. Orsborne.
Arriba (near)	Lincoln	5,238	5	69.9		96	4	45	25	38	1.21		0.40	0	11	2	27	2	se.	C. A. Creel.
Auldurst	Teller	8,500	1								4.92		1.10	0	18	4	17	10	n.	Mrs. Alice A. Auld.
Bennet (near)	Arapahoe										1.21		0.30	0	8	15	14	2	n.	J. F. Egelhoff.
Boulder	Boulder	5,347	15	68.6	- 1.4	90	8	46	9	34	1.09	- 0.25	0.50	0	11	13	11	7	n.	O. H. Wangelin.
Burlington	Kit Carson	4,160	8	74.2		99	11	48	25	38	1.30		0.33	0	9	1	29	1	se.	W. P. Davis.
Cassels	Park	8,445	1								3.37		1.00	0	11	14	16	1	w.	Harriet M. Cassell.
Castle Rock	Douglas	6,220	19	65.5	- 2.3	90	29	40	30	45	2.98	+ 0.32	0.73	0	10	10	3	18	s.	Thos. W. Vaughan.
Cheesman	Jefferson	6,890	8	65.2		85	10	46	9 ¹	37	6.55		1.50	0	12	10	19	2	sw.	J. G. Thornburg.
Cheyenne Wells	Cheyenne	4,279	17	73.5	- 0.1	97	5	49	25	38	2.87	- 0.22	2.15	0	5	18	13	0	se.	J. W. Adams.
Cope	Washington		14	68.0	- 4.9	92	29	43	26	36	1.48	- 1.86	0.50	0	8	15	15	1	s.	A. A. Williams.
Corona	Grand	11,660	4	44.6		60	10	30	2 ¹	26	4.46		0.98	0	15				w.	U. S. Weather Bureau.
Denver	Denver	5,272	39	69.6	- 2.2	91	10	50	24	38	1.31	- 0.31	0.49	0	9	9	17	5	sw.	Do.
Edgewater	Jefferson	5,450	3	69.0		92	12 ¹	45	9 ¹	45	1.47		0.60	0	8	17	19	4	w.	Dr. N. P. Levin.
Estes Park Hatchery	Larimer	8,000	2								2.40		0.55	0	9	2	16	13	w.	G. H. Thomson.
Fort Collins	do.	4,985	29	66.4	- 2.2	88	12	45	9 ¹	40	1.47	- 0.43	0.54	0	8	12	18	1		Colorado Agri. College.
Fort Lupton	Weld	4,907																		R. W. Benedict.
Fort Morgan	Morgan	4,319	13																	Della M. Scott.
Frances	Boulder	9,300	6	59.2		85	12	37	9	40	3.37		0.85	0	11	3	26	2	w.	C. W. Barry.
Frys Ranch	Larimer	7,500	1	58.8		84	10	34	9	47	2.67		0.85	0	10	8	20	3	w.	Norman W. Fry.
Georgetown	Clear Creek	8,550	9								2.95		0.62	0	14	2	22	7		H. L. Corbett.
Greeley	Weld	4,649	20	69.9	- 0.9	93	29	47	9 ¹	44	0.92	- 0.99	0.64	0	6	19	11	1	nw.	Nelson Reynolds.
Hartsel	Park	7,670	2								5.65		2.60	0	12	7	10	14		Emily Kleinknecht.
Hawthorne	Boulder	6,000	2								2.12		0.45	0	10	18	11	2		B. E. Chesebro.
Holyoke (near)	Phillips	3,745	15								0.62	- 1.85	0.23	0	9	22	9	0	se.	A. C. Cauble.
Idaho Springs	Clear Creek	7,534	11	61.6	- 1.4	83	12	40	9	40	2.30	- 0.50	0.79	0	7	6	14	11	e.	J. J. Willis.
Keota	Weld	4,966									0.83		0.30	0	7	16	11	4	w.	I. S. Griffin.
Laporte	Larimer	5,053	20								1.44	- 0.37	0.39	0	7					P. A. Taft.
Leroy (near)	Logan	4,380	22								2.50	+ 0.43	1.11	0	9	4	10	17	w.	Chas. Green.
Longmont	Boulder	4,980	10	69.2	- 1.2	94	28	45	8	46	1.20	- 0.23	0.37	0	8	18	10	3	ne.	Great Western Sugar Co.
Longs Peak (near)	Larimer	8,600	16	53.4	- 0.9	74	12	28	9 ¹	44	3.12	+ 0.27	0.63	0	15	2	29	0	se.	Enos A. Mills.
Moraine	do.	7,775	21																	J. D. Stead.
Platte Canon	Jefferson	5,492	12								2.87	+ 0.91	0.90	0	7	18	13	0	sw.	Denver Union Water Co.
St. Cloud	Larimer	7,750	8								2.47		0.92	0	7	16	14	1	nw.	Miss Guilla Silvers.
Sedgwick	Sedgwick	3,573	3								1.77		0.52	0	7	12	19	0	se.	Edwin Lewis, M. D.
Silt Mine	Clear Creek	11,500	2																	Chas. F. Deininger.
Spicer (near)	Larimer	5,206	15								1.44		0.38	0	4	10	12	9	sw.	Frank W. Murphy.
Sterling	Logan	3,892	2	70.8		94	8	42	9	40	0.80		0.48	0	4	9	16	6	se.	Great Western Sugar Co.
Waterdale	Larimer	5,206	8	68.2		92	30	45	9	42	1.22		0.44	0	8					P. H. Boothroyd.
Wray	do.	3,512	15	75.2	+ 1.1	100	29	44	25	45	0.63	- 1.81	0.17	0	7	9	22	0	se.	J. C. Toumey.
Yuma	do.	4,138	20								1.00	- 1.87	9.57	0	6	7	23	1	s.	Matthew Harr.
Nebraska.																				
Ainsworth	Brown	2,521	6	71.4		101	4	41	25	40	1.07		0.16	0	9				sw.	John M. Cotton.
Albion	Boone	1,747	15	75.0	+ 2.4	103	4 ¹	42	6	50	1.97	- 1.21	1.23	0	6	16	6	9	s.	F. M. Weitzel.
Allamore	Boxbutte	3,968	19	69.8	- 1.9	97	31	38	9	49	1.45	- 1.02	1.10	0	2	17	14	0	se.	J. A. Keegan.
Alma	Harrison	1,939	16	76.7	+ 1.1	111	5	48	25	39	6.07	+ 2.60	1.53	0	13	16	15	0	s.	W. A. Sharpnack.
Anoka	Bord		6	72.4		105	1	41	25	49	0.76		0.23	0	6	19	12	0	nw.	W. Whitla.
Aradla	Valley	2,186	13								4.28	- 0.78	1.73	0	7	11	14	6	se.	J. L. Owen.
Arden	Boone		1								2.93		1.70	0	8	10	20	1	s.	A. E. Johns.
Ashland	Saunders	1,100	28	78.8	+ 2.4	112	5	52	25 ¹	40	1.90	- 2.85	1.16	0	6	16	15	0	s.	Dr. A. S. von Mansfelde.
Ashland	Sherman	2,061	19								4.35	+ 0.20	1.95	0	9	15	14	2	s.	F. Rein.
Atkinson	Holt	2,108	6	73.2		103	4	43	25	40	1.38		0.48	0	7	19	8	4	sw.	C. J. Wilson.
Auburn	Nemaha	1,051	21	78.4	+ 2.6	109	5													

TABLE 1.—Climatological data for July, 1911. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.					Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>Nebraska—Continued.</i>																				
Brokenbow	Custer	2,477	17	72.2	- 1.1	102	1	44	25	42	4.31	+ 0.01	1.63	0	10	20	5	6	se.	Chi., Burl. & Quincy R. R.
Burge	Cherry	2,074	5	71.2		98	1	39	24	44	2.31		0.55	0	7	19	9	3	s.	H. A. Davis.
Cairo	Hall	1,951	3								2.88		0.98	0	6					Elliott Harrison.
Callaway	Custer	2,555	19	74.7	+ 1.5	105	5	43	25	43	2.58	+ 0.61	1.36	0	7	19	9	3	s.	J. H. Evans.
Cambridge	Furnas	2,258	3	76.8		107	4	47	25	43	5.90		2.35	0	12	14	13	4	se.	Chas. Jensen.
Canton (near)	Sioux		3	65.2 ^a		92	29	32	9	55 ^a	1.71		0.86	0	3				se.	A. E. Hann.
Columbus	Platte	1,442	18	74.0	+ 0.6	105	5	48	24	45	2.03	- 1.84	1.17	0	6	18	7	6	s.	A. A. Rush.
Cozad	Dawson	2,496	3								4.47		1.08	0	8	16	15	0	s.	A. A. Luttin.
Craigton	Knox	1,600	13								1.76	- 1.78	1.60	0	7	15	11	5	nw.	C. L. Cherry.
Cretz	Saline	1,368	20	78.8	+ 3.4	110	5	51	25	37	3.48	- 0.84	2.08	0	4	14	11	6	s.	Doane College.
Culbertson	Hitchcock	2,565	25	75.8		104	4 [†]	43	20	47	2.58	- 0.32	1.30	0	9	19	4	8	se.	J. H. Corrick.
Curtis	Frontier	2,553	16	75.7	+ 0.2	103	5	42	25	45	6.50	+ 3.24	3.91	0	9	7	26	4	ne.	Dr. S. R. Razez.
David City	Butler	1,619	22	77.8	+ 4.3	107	4	50	24	37	2.12	- 2.58	0.70	0	7	12	19	0	se.	S. Clingman.
Dawson	Richardson	945	17	78.3 ^a	+ 1.2	109	4 [†]	50	17 [†]		3.19	- 1.94	2.27	0	3					Mrs. E. I. Atkinson.
Dubois	Pawnee	1,074	6								8.55		7.47	0	7	22	7	2	e.	O. M. Backus.
Dumas	Wheeler		3								3.20		0.91	0	12	14	12	5	sw.	J. M. Kenney.
Ellis	Gage	1,430	6								4.60		3.35	0	5					D. J. Wood.
Elmore	Buffalo	2,668	4								4.10		1.33	0	7					E. L. Sutton.
Elsie	Perkins	3,382	3								1.98		1.04	0	10					J. F. Brittain.
Ericson	Wheeler	2,029	19								2.15	- 1.18	1.14	0	10				s.	J. A. Bodyfield.
Ewing	Holt	1,888	19	74.2		106	1	42	25	48	3.02	- 0.37	1.12	0	10					G. H. Benson.
Fairbury	Jefferson	1,316	37	79.0	+ 2.2	112	5	49	25	40	2.66	- 2.10	0.87	0	6	11	20	0	s.	W. F. Cramb.
Fairmont	Fillmore	1,641	17	76.0	+ 1.3	108	8	48	25	42	3.58	- 0.64	1.87	0	6	22	3	6	se.	Chi., Burl. & Quincy R. R.
Fort Robinson	Dawes	3,764	28	66.9	- 4.1	94	7	32	9	55	0.68	- 1.36	0.30	0	6	22	5	4	w.	Post surgeon.
Franklin	Franklin	1,820	18	77.4	+ 1.8	112	5	43	25	43	4.47	+ 0.73	1.30	0	8	19	11	1	se.	A. R. Feck.
Fremont	Dodge	1,203	32	76.9	+ 2.1	110	5	46	26	46	2.39	- 1.91	1.77	0	5	8	22	1	se.	Ernest Hahn.
Fullerton	Nance	1,629	10	75.5		105	4	45	25	43 [†]	1.45	- 2.89	1.10	0	3	19	12	0	s.	Dr. F. W. Johnson.
Geneva	Fillmore	1,633	21	77.8	+ 2.1	109	5	49	25	44	4.79	+ 0.75	2.72	0	7	25	5	1	sw.	F. M. Flory.
Genoa	Nance	1,584	36	75.6	+ 0.8	104	4 [†]	49	24 [†]	40	2.12	- 2.01	1.75	0	8	17	12	2	sw.	F. W. Parsons.
Gordon	Cherry	3,550	10	67.9 [†]		95	28	33	11 [†]	56 [†]	1.39	- 1.01	0.43	0	7					G. F. Williams.
Gosper	Gosper		10								4.82	+ 1.36	1.65	0	10	7	24	0	se.	E. H. Stoll.
Gothenburg	Dawson	2,557	17	75.4	+ 1.0	105	5	45	25	42	2.81	- 0.07	1.00	0	8	15	9	7	se.	Dr. W. J. Bartholomew.
Grand Island	Hall	1,860	19	76.4	+ 1.2	107	4	49	25	38	5.60	+ 1.48	2.24	0	7	17	8	6	s.	E. A. Barnes.
Grant	Perkins	3,405	8	72.6		103	29	39	24	49	1.08		0.28	0	10	10	20	1	se.	Cyrus Carver.
Greeley	Greeley	2,021	16	72.2		101	4	44	25	36	2.76	- 0.98	1.90	0	10	13	18	0	se.	W. E. Morgan.
Guilerock	Webster	1,646	11								7.63	+ 1.48	2.70	0	8	9	15	7	ne.	J. S. Marsh.
Halsey	Thomas	2,695	9	73.8		104	1	46	25	40	4.91		1.67	0	12	12	19	0	se.	U. S. Forest Service.
Hartington	Cedar	1,309	20	73.1	+ 0.3	104	4	50	17 [†]	41	3.22	- 0.13	1.30	0	6	14	12	5	nw.	D. E. Ewing.
Hastings	Adams	1,932	21	75.8	+ 0.5	108	5	52	25	39	5.93	- 2.10	1.30	0	7	25	6	0	se.	Chi., Burl. & Quincy R. R.
Hayes Center	Hayes																			C. A. Ready.
Hay Springs	Sheridan	3,821	25	69.0	- 1.4	96	28 [†]	37	25	48	1.54	- 1.09	0.44	0	8	10	21	0	s.	A. Kadlecak.
Hebron	Thayer	1,458	26	77.2	+ 1.2	109	5	50	25	36	3.93	- 0.56	1.30	0	8					Dr. C. M. Easton.
Hemingford	Boxbutte	4,256	2								1.61		0.95	0	6					A. S. Enyeart.
Hendley	Furnas	2,231	7								5.39		2.60	0	7					T. L. Jones.
Hillside	McPherson	3,484	2	71.2		102	4	36	25	47	3.38		1.50	0	7	21	7	3	sw.	Mrs. M. R. Lloyd.
Holdrege	Phelps	2,324	21	76.0	- 0.4	105	4 [†]	50	25	42	4.04	- 0.71	1.60	0	11	23	6	2	se.	Chi., Burl. & Quincy R. R.
Hooper	Dodge	1,228	14								1.47	- 3.15	1.00	0	4					Dr. W. H. Heine.
Hull (near)	Banner		1								0.78		0.28	0	7	11	8	12	sw.	Mrs. W. P. Miller.
Imperial	Chase	3,278	22	76.0	+ 1.5	101	29	44	25	45	1.10	- 1.73	0.37	0	6	6	22	3	se.	Robt. Malcolm.
Kearney	Buffalo	2,146	24	76.9	+ 1.1	108	5	50	24	39	3.15	- 1.23	1.08	0	8	17	14	1	s.	City Engineer.
Kimball	Kimball	4,697	23	76.0	- 1.0	98	29	42	8 [†]	45	1.18	- 1.35	0.28	0	8	16	14	1	s.	F. J. Bellows.
Kirkwood	Rock		16	73.0	+ 0.3	105	1 [†]	45	25	42	1.85	- 1.87	0.87	0	7	20	11	0	s.	Mrs. C. Arter.
Kowanda	Deuel		3								1.25		0.46	0	8					Geo. W. Hulise.
Lamar	Chase		1								0.85		0.25	0	7	21	8	2	se.	R. L. McGaughey.
Lexington	Dawson	2,385	22	73.5	+ 1.0	103	5	43	25	40	3.41	+ 0.03	1.10	0	7	22	0	9	se.	Robt. Chadwick.
Lincoln	Lancaster	1,189	33	78.2	+ 1.8	110	5	52	24	38	1.83	- 2.00	0.94	0	5	14	11	6	s.	U. S. Weather Bureau.
Lodgepole	Cheyenne	3,820	15	72.3	+ 2.2	98	29	41	25	48	0.67	- 1.75	0.53	0	2					R. T. Kidney.
Loup	Sherman	2,067	16								4.29	- 0.51	1.75	0	7					Harriet Hayhurst.
Loyal	Custer		3								4.32		2.47	0	6	17	8	6	s.	C. H. Cass.
McCook	Redwillow	2,506	17	76.5	- 1.0	105	1 [†]	51	16 [†]	45	0.84	- 2.19	0.27	0	2	29	2	0	se.	C. G. Coglier.
McCool Junction	York	1,575	16								5.03	+ 0.44	3.13	0	7					L. L. Slagle.
Madison	Madison	1,585	17	74.1	+ 1.1	103	4	48	25	39	1.40	- 1.96	1.05	0	3	17	11	3	se.	Dr. F. A. Long.
Marquette	Hamilton	1,830	32								4.92	+ 0.60	1.40	0	9					John Ellis.
Mary	Brown		1								3.12		1.37	0	10	14	16	1	sw.	G. C. Stuft.
Mason City	Custer	2,257	10								6.38	+ 1.94	2.72	0	7					J. A. Ansberry.
Minatare	Scotts Bluff	3,825	2								1.20		1.20	0	1	19	12	0	se.	A. Kennedy.
Minden	Kearney	2,169	34	75.4	+ 0.4	108	5	44	25	43	2.46	- 2.06	0.82	0	9	16	13	2	s.	Joel Hull.
Mitchell	Scotts Bluff	3,950	3	70.3		94	28	39	9	52 [†]	1.84		0.65	0	6	22	8	1	se.	U. S. Reclamation Service.
Mullen	Hooker	3,199	1								1.78		0.67	0	9	17	14	0	se.	C. R. Polen.
Nebraska City	Otoe	941	36	76.5	+ 0.5	108	5	46	26	45	2.24	- 1.43	1.17	0	6	20	11	0	s.	Chi., Burl. & Quincy R. R.
Nelson	Nuckolls	1,683	1								7.27		3.77	0	9	15	11	5	ne.	Mack I. Koser.
Norfolk	Madison	1,532	27	74.2	+ 0.7	103	4	44	25	43	2.83	- 1.37	1.47	0	8	22	9	0	se.	Dr. P. H. Salter.
North Loup	Valley	1,961	23	74.4	+ 0.5	103	4	46	25	40	3.96	- 0.01	1.72	0	7	16	15	0	s.	W. G. Rood.
North Platte	Lincoln	2,841	37	72.6	- 1.3	99	4	43	25	40	3.31	+ 0.63	0.80	0	12	12	19	0	se.	U. S. Weather Bureau.
Oakdale	Antelope	1,722	25	72.8	- 0.4	103	4	45	25	42	4.52	+ 0.84	1.75	0	11	16	12	3	s.	G. S. Clingman.
Omaha	Douglas	1,103	41	78.6	+ 2.1	107	5	54	24	31	1.08	- 3.25	0.62	0	7	13	13	5	s.	U. S. Weather Bureau.
Ord	Valley	2,																		

TABLE 1.—Climatological data for July, 1911. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.				Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Nebraska—Continued.																			
Springview.	Keyapaha.	1,472	20	73.8	+ 0.4	102	4	47	24	43	2.25	- 0.83	1.20	0	6	15	14	2	C. L. Phelps.
Stanton.	Stanton.	2,804	16	72.0	- 0.8	101	4	44	25	45	2.02	- 1.87	1.40	0	4	24	7	0	Alfred Pont.
Stratton.	Hitchcock.	1,574	28								0.00	- 1.68	0.31	0	3				Miss Stella Vennum.
Superior.	Nuckolls.	1,059	20	78.6	+ 2.5	112	5	48	18	43	1.98	- 1.78	1.37	0	6	17	12	2	F. V. Bishop.
Syracuse.	Otoe.	1,023	23								4.36	- 0.22	3.85	0	4	21	10	0	W. N. Hunter.
Tablerock.	Pawnee.	1,113	34	79.4	+ 1.9	112	5	49	25	50	4.53	+ 0.18	4.00	0	3	14	13	4	E. D. Howe.
Tecumseh.	Johnson.	1,000	22	75.6	+ 0.6	109	5	48	17	44	2.37	- 2.06	1.70	0	8	20	3	8	F. B. Thurler.
Tekamah.	Burt.	1,597	2								8.00		7.00	0	7				Dr. A. D. Nesbit.
Tobias.	Saline.		2								1.90	- 2.19	1.00	0	3	11	19	1	Frank Ainsworth.
University Farm.	Lancaster.	2,613	23	72.0	- 1.2	98	4	40	25	41	0.68	- 2.72	0.19	0	7	20	11	0	S. W. Perin.
Valentine.	Cherry.	1,187	9								1.98		0.66	0	4	24	7	0	U. S. Weather Bureau.
Wahoo.	Saunders.	1,387	17	73.6	+ 0.8	104	4	42	17	47	1.62	- 1.63	0.74	0	6	23	6	2	W. T. Mauck.
Wakefield.	Dixon.	10	10	73.2		105	4	42	17	47	2.10	- 1.93	1.10	0	6				L. H. Weaver.
Walsh.	Thurston.	2,299	6								3.48		1.10	0	9	12	18	1	A. P. Coleman.
Watertown.	Buffalo.		14								1.30	- 1.45	0.80	0	4				R. E. Swift.
Wauwata.	Chase.	1,080	34	78.4		112	5	47	27	48	1.58	- 2.28	0.85	0	4	21	7	3	C. D. Fuller.
Weepingwater.	Cass.	1,313	26	77.6	+ 2.9	108	4	49	17	43	1.84	- 2.08	0.81	0	3	23	8	0	S. W. Orton.
Westpoint.	Cuming.	1,380	16								1.14	- 2.98	0.48	0	4	30	1	0	J. C. Elliott.
Wisner.	do.	1,633	23	77.8	+ 1.2	111	5	49	25	43	2.68	- 1.77	1.28	0	7	23	6	2	F. C. Evans.
York.	York.																		A. T. Glauque.
Iowa.																			
Afton.	Union.	1,212	17	77.4	+ 2.2	105	5	52	24	34	0.89	- 3.46	0.52	0	4	22	9	0	Hon. N. W. Rowell.
Allerton.	Wayne.		9	77.7		108	5	46	17	38	1.41		0.80	0	5	24	3	4	Mrs. Geo. Shriver.
Alton.	Sioux.	1,305	6	73.4		103	4	44	16	45	1.89		0.74	0	12	16	14	1	W. S. Slagle.
Atlantic.	Cass.	1,164	20	76.8	+ 3.6	107	5	45	17	41	0.89	- 3.44	0.40	0	8	12	10	9	Thos. H. Whitney.
Audubon.	Audubon.	1,301	17	75.4	+ 3.3	105	5	43	17	41	0.76	- 3.16	0.65	0	4	17	10	4	Geo. F. Kellogg.
Bedford.	Taylor.		11	78.5	+ 5.1	110	5	45	18	47	0.68	- 4.66	0.44	0	4	24	5	2	E. E. Healy.
Centerville.	Appanoose.		1	78.6		110	5	49	17	37	2.36		1.05	0	5	27	4	0	Gordon Peacock, Jr.
Chariton.	Lucas.	1,042	16	76.4	+ 2.6	106	5	45	17	40	0.52	- 4.94	0.25	0	3	25	4	2	C. C. Burr.
Clarinda.	Page.	1,000	21	75.4	- 0.1	110	5	42	26	42	1.07	- 3.63	0.46	0	4	20	3	8	A. S. Van Sandt.
Corning.	Adams.	1,117	19	75.6	+ 2.0	108	5	43	18	43	2.07	- 2.28	1.83	0	3	20	11	0	Jerome Smith.
Corydon.	Wayne.	1,101	18	78.5	+ 3.7	108	5	49	17	38	1.41	- 2.77	0.72	0	6	18	10	3	J. J. C. Bower.
Council Bluffs.	Pottawattamie.		1	77.7		108	5	43	25	48	1.11		0.47	0	4	2	23	6	B. W. Crossley.
Creston.	Union.	1,312	6	76.2		106	5	47	17	37	0.89		0.70	0	6	17	8	6	O. J. Colby.
Cumberland.	Cass.		12								0.63	- 4.81	0.50	0	3	28	1	2	J. H. Reppert.
Denison.	Crawford.	1,180	17	74.6	+ 1.9	106	5	39	17	46	0.50	- 3.56	0.16	0	7	22	9	0	W. C. VanNess.
Elliot.	Montgomery.		6	76.5		106	5	43	26	44	0.81		0.38	0	3	22	9	0	Henry Barnes.
Greenfield.	Adair.		19	76.3	+ 2.4	107	5	47	17	38	1.53	- 3.17	0.49	0	5	17	14	0	R. B. Oldham.
Harlan.	Shelby.	1,182	12	74.4	+ 1.2	106	5	43	17	42	1.39	- 3.92	0.86	0	8	11	17	3	C. A. Reynolds.
Inwood.	Lyon.	1,474	7	73.4		106	4	46	25	41	2.34		1.03	0	13	23	5	3	F. B. Hanson.
Lamoni.	Decatur.		4	77.8		110	5	49	26	38	2.04		1.05	0	6	19	0	12	T. J. Fitzpatrick.
Larabee.	Cherokee.	1,266	21	73.4	+ 0.6	103	4	42	17	43	2.24	- 2.13	0.56	0	7	15	14	2	Alonzo Pruitt.
Le Mars.	Plymouth.	1,224	15	72.6	+ 0.2	96	1	44	17	37	1.27	- 3.20	0.91	0	4	9	22	0	G. A. C. Clarke.
Lenox.	Taylor.	1,250	16	78.0	+ 4.2	110	5	48	17	37	1.45	- 3.49	0.90	0	4	25	5	1	J. L. Hurley.
Leon.	Decatur.	1,120	9	79.6		109	5	50	17	40	1.33		0.68	0	5	26	2	3	Morris Gardner.
Little Sioux.	Harrison.		6	75.7		108	5	46	26	43	2.52		1.25	0	7	19	10	2	Geo. H. Gibson.
Logan.	do.	928	44	75.6	+ 0.9	110	5	41	27	48	0.73	- 4.46	0.24	0	6	8	23	0	Glenn H. Stern.
Mount Ayr.	Ringgold.	1,236	18	78.6	+ 3.6	109	5	50	24	39	1.01	- 4.30	0.67	0	5	17	10	4	A. F. Beard.
Murray.	Clarke.		20	77.5	+ 3.4	109	5	49	26	39	0.63	- 4.22	0.30	0	3	14	14	3	M. T. Ashley.
Odebolt.	Sac.		14	76.2	+ 1.7	106	4	45	17	42	0.71	- 3.93	0.21	0	7	17	14	0	E. Starnes.
Onawa.	Monona.	1,051	11	76.8	+ 1.8	104	4	50	26	40	2.27	- 3.40	1.25	0	7	27	4	0	C. G. Perkins.
Pacific Junction.	Mills.	960	12	76.2	+ 2.0	110	5	45	26	43	1.72	- 3.41	0.57	0	5	21	10	0	H. H. McCartney.
Rock Rapids.	Lyon.	1,358	12	73.1	+ 1.3	107	4	45	25	44	3.81	+ 0.94	1.07	0	5				W. C. Wyckoff.
Sheldon.	O'Brien.	1,422	11	73.5	+ 1.4	103	4	45	16	45	4.22	- 0.92	1.50	0	13	16	11	4	Dr. A. W. Beach.
Sibley.	Osceola.	1,212	18	71.0	+ 0.8	101	4	46	25	38	2.17	- 1.80	0.69	0	10	17	11	3	H. G. Doolittle.
Sioux Center.	Sioux.		12	72.6	+ 1.4	102	4	47	24	38	1.64	- 3.07	0.51	0	8	24	4	3	J. deRuyter.
Sioux City.	Woodbury.	1,135	22	74.2	0.0	103	4	49	17	37	1.56	- 2.05	0.78	0	11	17	13	1	U. S. Weather Bureau.
Spencer.	Clay.		1	74.1		106	4	45	16	48	0.66		0.25	0	7				S. Gillespie.
Thurman.	Freemont.		14	78.0	+ 2.6	107	5	45	26	48	0.96	- 4.95	0.62	0	6	9	20	2	C. R. Paul.
Washta.	Cherokee.	1,157	13	74.2	+ 3.6	106	4	44	14	48	2.55	- 1.90	1.25	0	4	26	3	2	H. L. Felter.
Woodburn.	Clarke.	961	12	77.4		107	5	41	17	44	4.66	- 4.66	0.23	0	5	16	15	0	C. B. McDonough.
Kansas.																			
Ablene.	Dickinson.	1,157	16								2.83	- 1.20	0.60	0	7	14	10	7	T. W. Sherman.
Agricultural College.	Riley.	1,100	53	79.4	+ 0.7	107	5	50	25	35	2.13	- 2.62	0.76	0	6	19	2	10	Prof. J. O. Hamilton.
Alton.	Osborne.	1,651	9	80.0		112	5	50	25	41	4.27	- 0.43	1.31	0	9	15	15	1	H. A. Storer.
Atchison.	Atchison.	1,973	20	78.5	+ 1.5	108	4	52	26	38	3.45	- 1.50	0.90	0	9	21	9	1	Prof. M. F. Troxell.
Beloit.	Mitchell.	1,383	16	78.4		109	5	46	25	39	5.17	+ 1.51	1.82	0	10	9	17	5	F. A. Slack.
Blakeman.	Rawlins.	2,894	14	75.7		104	4	44	25	43	1.79	- 1.62	0.80	0	7	19	9	3	C. L. Henderson.
Blue Rapids.	Marshall.	1,105	5								2.36		0.79	0	9	19	2	10	M. Norton.
Centralia.	Nemaha.	1,256	2	79.0		109	5	44	25	44	1.38		0.33	0	8	20	8	3	N. S. Hazen.
Chapman.	Dickinson.	1,113	7	79.4		109	5	49	25	39	2.41		0.65	0	8	22	7	2	Dr. R. McShea.
Clay Center.	Clay.	1,203	10	80.8		112	5	46	25	44	2.41		0.98	0	6	12	6	13	O. L. Slade.
Colby.	Thomas.	3,138	20	77.0	+ 1.6	106	5	48	25	47	1.25	- 1.32	0.40	0	6	6	22	3	G. H. Kinkel.
Concordia.	Cloud.	1,398	27	78.9	+ 0.8	107	5	51	25	34	2.77	- 0.85	1.12	0	12	4	24	3	U. S. Weather Bureau.
Denamora.	Norton.	2,200	2																J. J. Griffith.
Dresden.	Decatur.	2,731	17	76.0		105	4	50	24	42	3.91	+ 0.02	1.43	0	12	19	6	6	Jacob Bock.
Ellsworth.	Ellsworth.	1,537	7	78.6		109	5	44	25	47	1.92		0.86	0	7	9	16	0	Geo. Seitz.
Enterprise.	Dickinson.	1,144	9	80.2		10													

TABLE 1.—Climatological data for July, 1911. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.		
Kansas—Continued.																				
Lawrence.	Douglas.	997	43	78.6	+ 1.2	108	5	53	25	34	2.92	- 1.85	2.11	0	6	10	15	6	sw.	Prof. H. P. Cady.
Leavenworth.	Leavenworth.	913	67	80.6	+ 2.6	108	5	53	18	38	0.41	- 3.81	0.14	0	7	23	5	3	se.	F. H. Lemon.
Lebanon.	Smith.	1,812	13	77.2	+ 0.7	110	5	52	25	38	5.82	+ 1.49	1.45	0	11	23	5	3	s.	E. V. Bower.
Lindsborg.	McPherson.	1,333	5																	A. J. Fredrickson.
Mankato.	Jewell.	1,784	2	77.6		110	5	51	25	38	4.68		1.01	0	9	16	3	12	sw.	W. F. Isaacs.
Minneapolis.	Ottawa.	1,259	21	78.2	- 0.7	109	5	50	25	35	4.40	+ 1.33	1.16	0	9	21	4	6	s.	J. L. Steele.
Moran.	Allen.	1,098	15	79.4	+ 1.6	109	3	51	25	34	4.66	- 0.45	1.15	0	11	16	8	7	sw.	C. J. Norton.
Natoma.	Osborne.	1,834	2								1.80		0.95	0	4	26	3	2	se.	C. O. Hunt.
Norton.	Norton.	2,284	13	77.7	+ 3.2	108	5	51	25	37	6.84	+ 3.19	1.87	0	12	13	16	2	se.	Sim Slefel.
Oberlin.	Decatur.	2,539	24																	I. K. Huber.
Oketo.	Marshall.	1,194	3	79.2		110	5	52	24	42	1.94		0.58	0	9	5	26	0	sw.	J. A. Church.
Olathe.	Johnson.	1,032	16	79.7	+ 2.7	110	5	49	25	37	2.79	- 2.69	1.07	0	9	8	14	9	se.	Dr. S. B. S. Wilson.
Osage City.	Osage.	1,081	12	77.6		109	5	48	26	43	3.60	- 1.17	1.11	0	9	16	3	12	s.	W. C. White.
Ottawa.	Franklin.	926	17	79.8	+ 2.4	109	5	51	25	40	0.89	- 4.11	0.30	0	6	22	5	4	s.	H. F. McDougal.
Phillipsburg.	Phillips.	1,939	20	77.8	+ 1.0	111	5	53	25	50	10.14	+ 7.26	2.50	0	13	20	10	1	se.	N. E. Bailey.
Plainville.	Rooks.	2,156	5								2.61		0.50	0	7	20	9	2	s.	P. D. Spellman.
Pleasanton.	Linn.	862	9	78.8		105	3	51	25	35	3.24		0.95	0	9	20	8	3	s.	B. F. Blaker.
Republic.	Republic.	1,495	8	78.8		112	5	45	25	39	4.27		1.10	0	9					J. W. Ambrose.
Russell.	Russell.	1,834	12	79.7	+ 1.9	108	5	53	24	39	3.48	+ 0.47	1.20	0	8	16	9	6	s.	Robert Brebner.
Russell Springs.	Logan.		1	77.7		105	5	45	25	44	2.12		0.45	0	8	18	12	1	se.	D. J. Hutto.
St. Francis.	Cheyenne.	3,288	3	76.8		104	11	42	24	48	0.88		0.21	0	8	8	23	0	se.	J. E. Uplinger.
Salina.	Saline.	1,227	27	79.7	+ 0.1	108	5	50	25	34	3.26	- 0.49	1.21	0	9	10	21	0	se.	Prof. A. W. Jones.
Scott.	Scott.	2,971	5	78.3		105	5	50	25	45	0.93		0.19	0	10	6	24	1	se.	J. B. Loughran.
Smith Center.	Smith.	1,800	1								8.15		2.85	0	10	13	18	0	se.	W. H. Nelson.
Topeka.	Shawnee.	997	25	78.8	+ 1.2	107	5	56	25	33	3.91	- 0.94	2.83	0	10	16	8	7	s.	U. S. Weather Bureau.
Valley Falls.	Jefferson.	913	12	78.8	+ 3.0	109	5	46	25	43	0.85	- 3.70	0.25	0	6	27	4	0	s.	Miss Nettie Maxwell.
Vinland.	Douglas.	880	2								2.85		1.82	0	9					A. Schick.
Wakeeney.	Trego.	2,456	28	78.4	+ 1.3	107	5	51	25	39	3.56	+ 0.09	1.97	0	7	25	5	1	s.	A. S. Peacock.
Wallace.	Wallace.	3,303	41	76.9		103	5	47	25	42	1.44	- 1.90	0.60	0	8	0	30	1	se.	M. T. Griggs.
Wamego.	Pottawatomie.	1,002	18								3.31	- 1.83	2.40	0	6	17	8	6	s.	M. L. Stone.
Missouri.																				
Amoret.	Bates.	850	3	80.0		112	5	50	25	38	2.47		0.55	0	10	12	16	3	sw.	Darby Fruit Farm.
Appleton City.	St. Clair.	853	21	79.5	+ 1.7	111	3	51	25	40	2.83	- 2.69	0.64	0	9	5	22	4	se.	T. C. Brown.
Arlington.	Phelps.	695									3.16	- 0.40	0.88	0	8	14	5	12	s.	George V. Randolph.
Arthur.	Vernon.	767	19	77.4	+ 1.0	106	2	48	23	42	6.52	+ 2.08	1.85	0	10	10	18	3	sw.	J. T. Armstrong.
Avalon.	Livingston.		27	79.4	+ 2.7	109	3	52	26	37	6.43	+ 1.77	2.85	0	6	23	6	2	sw.	F. G. Ashbaugh.
Bagnell.	Miller.	594									4.57		1.90	0	5	23	0	8	e.	W. S. Brockman.
Bethany.	Harrison.	881	22	78.9	+ 3.9	106	5	50	18	35	6.64	+ 1.94	3.59	0	5	25	5	1	sw.	W. H. Skinner.
Bolivar.	Polk.	1,070	24	78.2	+ 2.1	104	3	48	25	39	3.02	- 0.88	0.59	0	11	15	13	3	sw.	E. Waltz.
Boonville.	Cooper.	600	36								1.25	- 3.11	0.50	0	7	18	2	11	se.	C. Randecker.
Brunswick.	Chariton.	652	33	79.4	+ 2.5	109	3	54	18	37	3.96	- 0.64	1.28	0	10	17	5	9	s.	Louis Benecke.
Columbia.	Boone.	784	22	77.8	+ 0.4	105	5	51	26	34	3.03	- 0.62	1.54	0	8	12	14	5	s.	U. S. Weather Bureau.
Conception.	Nodaway.	982	28	79.2	+ 3.6	108	5	53	24	35	4.81	+ 0.57	2.01	0	7	11	17	3	sw.	Fr. Adelm Hess.
Eldorado Springs.	Cedar.	750	6	80.1		108	3	51	26	42	2.72		1.28	0	5	13	12	6	sw.	Samuel Graham.
Fayette.	Howard.	725	29	79.4	+ 2.2	105	3	50	18	36	1.35	- 2.72	0.45	0	6	19	4	8	sw.	Prof. T. Berry Smith.
Fulton.	Callaway.	818	21	78.0		107	5	50	18	38	2.56	- 2.21	0.45	0	2	11	17	3	sw.	Dr. J. L. Brenneman.
Glasgow.	Howard.	619	33								1.09	- 2.74	0.32	0	6	22	2	7	se.	J. J. Shaughnessy.
Grant City.	Worth.	1,130	20	73.3		112	5	52	18	37	1.38	- 3.81	0.93	0	4	24	3	4	sw.	W. H. Campbell.
Harrisonville.	Cass.	912	40	80.5	+ 3.1	110	2	51	25	43	2.86	- 1.23	1.05	0	8	15	1	15	sw.	A. J. Sharp.
Hazelhurst.	Livingston.		19								3.10	- 1.00	1.36	0	5					W. H. Baker.
Hermann.	Gasconade.	482	38								2.93	- 1.03	1.14	0	8	14	8	9	e.	C. T. Maushund.
Houston.	Texas.	1,280	20	74.4	- 1.4	98	3	46	25	39	5.40	+ 0.74	1.28	0	10	3	23	5	s.	E. Dempsey.
Jefferson City.	Cole.	328	30	78.0	+ 0.1	109	5	47	26	44	1.62	- 2.26	0.88	0	5	24	0	7	s.	Miss Emma Swift.
Kansas City.	Jackson.	963	22	79.3	+ 1.8	104	5	56	25	27	1.44	- 3.40	0.60	0	8	14	10	7	s.	U. S. Weather Bureau.
Kidder.	Caldwell.	1,017	20	79.0	+ 2.8	108	5	53	25	31	1.85	- 3.05	1.20	0	8	21	8	2	sw.	J. F. Sharp.
Lamonte.	Pettis.	863	24	80.2		107	3	49	25	45	1.65	- 3.05	0.89	0	5	16	8	7	sw.	Dr. W. E. Walker.
Lebanon.	Laclede.	1,265	23	77.5	+ 0.9	102	5	50	25	31	3.86	- 0.82	0.87	0	10	14	7	10	sw.	M. W. Serl.
Lexington.	Lafayette.	813	30	78.7	+ 2.2	106	5	50	26	41	2.74	- 2.44	1.56	0	9	21	0	10	s.	J. W. Keithley.
Liberty.	Clay.	864	24	79.3	+ 2.0	107	3	51	26	41	1.28	- 3.46	0.64	0	6	16	11	4	sw.	W. C. Wilmoft.
Lockwood.	Dade.	1,088	17	78.0		103	5	54	25	29	9.61	+ 4.09	2.59	0	9	9	5	7	sw.	C. S. Crow.
Marshall.	Saline.	779	21	79.6	+ 3.1	106	3	48	18	43	1.61	- 2.93	0.62	0	7	20	7	29	sw.	Dr. W. H. Black.
Maryville.	Nodaway.	1,160	22	78.7	+ 3.4	108	5	50	17	36	3.37	- 2.19	1.58	0	6	22	2	7	s.	J. R. Brink.
Mount Vernon.	Lawrence.	1,480	35	76.9	- 0.7	100	3	49	25	39	7.96	+ 2.57	3.25	0	9	16	6	9	se.	J. R. White & Son.
Nevada.	Vernon.	860	18								2.98	- 1.13	0.75	0	10	19	7	5	sw.	C. Jewell.
Oregon.	Holt.	1,113	57	77.0	+ 1.8	108	4	47	25	37	2.92	- 1.63	1.55	0	7	19	9	3	s.	Tom Curry.
Osceola.	St. Clair.	738	13								2.77	- 2.41	1.60	0	6	19	3	9	sw.	W. E. Matthews.
Patonsburg.	Daviess.		2								2.32		1.40	0	4	21	0	10	n.	Wm. Burton.
Rolla.	Phelps.	1,092	31	77.0	+ 0.4	102	5	51	26	37	2.77	- 1.41	1.28	0	10	19	6	6	se.	Prof. P. J. Wilkins.
St. Charles.	St. Charles.	614	34	78.9	+ 1.5	102	5	52	25	35	1.56	- 1.98	0.76	0	5	19	9	3	s.	L. C. Saeger.
St. Joseph.	Buchanan.	825	40	79.1		106	5	53	26	37	4.16	+ 0.18	2.55	0	10	16	11	4	s.	U. S. Weather Bureau.
St. Louis (1).	St. Louis.	567	40	79.4	+ 0.3	101	4	58	26	26	0.64	- 2.79	0.34	0	5	16	10	5	s.	Do.
St. Louis (2).	do.	578		79.6		101	3	56	26	26	0.74		0.29	0	4	13	12	6	s.	St. Louis University.
Sublett.	Adair.	1,000	32	78.0	+ 2.3	107	5	47	26	41	6.15	+ 1.76	4.00	0	6	15	12	4	sw.	Lewis Spriggs.
Trenton.	Grundy.	812	17	79.0	+ 3.0	104	5	54	26	32	3.63	- 0.53	1.86	0	8	27	4	0	s.	W. H. Estes.
Unionville.	Putnam.	1,072	19	77.4	+ 0.6	108	3	48	18	38	3.05	- 1.56	1.51	0	8					

MONTHLY WEATHER REVIEW.

JULY, 1911

TABLE 2.—Daily precipitation for July, 1911. District No. 6, Missouri Valley.

Stations.	Watershed.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Wyoming.																																		
Arapahoe.	Bighorn.																	.12															0.12	
Barnum.	Powder.																T.		T.												0.65	0.65		
Basin.	Bighorn.																				T.											0.13	0.13	
Bennett.	N. Platte.			.04								.23																					0.28	
Big Creek Station.	do.								.22				.09	T.		.15	.17	.06			.05	.07	.12					.01				T.	1.02	
Burns.	S. Platte.																																	
Casper.	N. Platte.	.50						.33	.12	T.									.08	.03			.01	.10							.03		0.56	
Centennial.	do.	.07	.06	.10								.06	T.	.14		T.	T.		.08	.03									T.		.03		1.06	
Cheyenne.	S. Platte.	.03	.16	.20		T.		T.	T.				.32		.01	.08	.02	.23	.05	.09		.02										T.	0.84	
Chugwater.	N. Platte.													.25	.10	.04		.18	.04					.17								T.	0.21	
Clark.	Clarks Fork.							.06								T.	.21	.14	.03	T.	.11	.03	T.								.11	.18	0.83	
Cody.	Bighorn.							.06										.04	.05	.03												.01	.06	0.35
Crazy Creek.	Clarks Fork.	.02						.02	.03								.08	.06	.06	.03	.02	.20	.10					.25	.20		.33	.18	1.58	
Dome Lake.	Tongue.																																	
Douglas.	N. Platte.							T.																										
Dubois.	Bighorn.																					.23										.05		0.28
Eatons Ranch.	Tongue.														.10																			0.55
Echeta.	Powder.																					.07	T.									.50	0.98	
Elk Mountain.	N. Platte.		.10	.12						.06									.04					.23	.05								T.	0.50
Encampment.	do.		.05			.12	.02							.48			.11	.12		.07	T.	.05	T.	.08								.04	0.63	
Errav.	do.																																1.15	
Fort Laramie.	do.		.06	.01																														
Fox Park.	do.	.09	.10	.09				.21	T.	.10													.22										T.	0.47
Germania.	Bighorn.																.09	.03															T.	1.39
Gillette.	Powder.																																0.52	
Horse Creek.	Bighorn.														.13																		1.10	
Hunters Station.	Powder.											.08						.45	.06	.29													T.	1.13
Hyattville.	Bighorn.																																.26	.23
Jireh.	Niobrara.																																.04	0.04
Kirtley.	do.		.10					T.										.01	.06	.94	.49			.08									.20	1.90
Kirwin.	Bighorn.	.02						T.	T.																									0.88
Knowles.	Bell Fourche.												T.	.02	T.		.20	.20	.40	.15	T.											.15	.51	
Lagrange.	N. Platte.	.19	.16											.42					.03														.10	0.96
Lander.	Bighorn.																																	

TABLE 2.—Daily precipitation for July, 1911. District No. 6—Continued.

Stations.	Watershed.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Montana—Contd.																																		
Chinook	Milk							.19		.60													.12								.40		1.31	
Chouteau	Missouri																																	
Clearcreek	Milk	.30						.23		.16																								
Clemons	Missouri										.05				.01	.07	.57	.06	.15	T.	.00	.04	.10	.12							.21		2.04	
Clydepark	Yellowstone	T.		T.	.03			.22									.08	.02	.03		.02	.03	.08								.30		1.47	
Conrad II	Marias			T.		.19										T.	.05	.02				.04	T.				.18				.07		0.76	
Copper	Musselshell			.18				.38	T.								.30	.08	.11	.22		T.	T.								.35		0.94	
Crow Agency	Bighorn	.14						.03	.33	.02							.08	.01	.03	.10	.05		.07	T.			.06	.03				.28		1.01
Culbertson	Missouri	.10					.09	T.				T.											.05	.20			.05							
Cummings	Bighorn																											.16			.46		1.11	
Cut Bank	Marias	.21							T.									T.					.14											
Decker	Tongue																																	
Denton	Missouri			T.				.05	T.	T.					T.	.14	.02	.13				.29	.07	T.							T.		0.76	
Dillon	Jefferson		.03	.02			.09	T.	.02						T.	.14	.01	.12			.08	.06	.10		.07	T.	T.	.03			.03	.02	0.50	
Dirty Creek	Musselshell	.19		.01				.01	.17	.02					T.	.06	.76					.06	.12	.03				.02			.04		1.61	
Dry Creek	Missouri																																	
Dry Wolf Camp	do.	.08		.08				.37	.05	.01							.14	.04				.05	.15			.34					.08	.01	1.40	
East Gallatin River	Gallatin	.15		.06	.02		.10		.40									T.				.08	.10				.75	.07		T.	.11		1.84	
Ekalaka	Little Missouri								.02								.10		.08															

TABLE 2.—Daily precipitation for July, 1911. District No. 6—Continued.

Stations.	Watershed.	Day of month.																															Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
North Dakota—Con.																																			
McHenry	James							.32									T.	.70					1.00	1.00							.68	3.70			
Manfred	Shenney															.04		.25					1.32	1.02				.03			.11	2.77			
Marion	Little Mo.																																		
Marstonmoor	James	T.		T.	T.			T.	.50	T.						T.	T.	.09				.11	.50	.43	T.			T.	T.	.42		2.05			
Medora	Little Mo.																						.22	.37	.53							1.07	1.29		
Melville	James							.26															.08	.13	.02							.48	1.76		
Mott	Cannon Ball												.02											.37	.08							.17	1.21		
Napoleon	Missouri																																.48	1.76	
New England	Cannon Ball																																.48	1.76	
New Rockford	James																																.48	1.76	
New Salem	Heart							.06								.32																	.48	1.76	
Orange	Cannon Ball							.07	.07																									.48	1.76
Schafer	Little Mo.							.22																										.48	1.76
Steele	Missouri																																	.48	1.76
Washburn	do.							T.	.07																									.48	1.76
Williston	do.	.03			T.			.11	.04	.01	T.							.06	T.														.11	1.47	
South Dakota.																																			
Aberdeen	James		.40	T.	.70				.90										.40	.20	.48			.15	T.	T.							.85	5.33	
Academy	Missouri		T.	.03	.02			.01	.90	.64		.01	.04		.20				.55				.11	.46	.45									3.61	
Alexandria	James																																	2.25	
Ardmore	Cheyenne		.01	.04					.41										.20					.20	.40									1.07	
Armour	Missouri								.70	.57																								2.00	
Bellefourche	Cheyenne								.07										.18															0.42	
Brookings	Big Sioux	T.							.64										.17															3.32	
Camp Crook	L. Missouri																		.06														.57	0.97	
Canton	Big Sioux																																	2.01	
Cascade Springs	Cheyenne		.14	.07					.03						.24	.08	T.						.08	.12	.16									2.67	
Castlewood	Big Sioux		.59	.03	.01	T.			.18	.60	.01								.25	T.				.15	.74	T.	T.							2.78	
Centerville	Missouri			.04	.05	.12																												2.35	
Clark	James		.02	.10	.11				.33	.76																								0.42	
Cottonwood	Missouri		T.	.40					.05	.76																								0.59	
Custer	Cheyenne								.03										.17	.02	.12													0.42	
Daviston	Grand							.12	.50																									0.95	
Deadwood	Cheyenne																																	0.40	
Deerfield	do.																																	0.94	
De Smet	James	.70		T.	.05				.85										.32															2.87	
Dowling	Cheyenne		.10	T.					.10					.50																				1.06	
Dumont	do.								.06					.03																				1.06	
Eales	Missouri		.04	T.	.16			.05	T.	1.39																								4.49	
Elk Mountain	Cheyenne													.17					.33	.06	.23												1.27		
Elk Point	Missouri																		.10															2.27	
Ellingson	Grand																																	0.32	
Englewood	Cheyenne								.01																									0.45	
Eureka	Missouri	.02			T.			.02	T.	.27	T.																							1.14	
Faulkton	James		.10	.14	.20				.17																									2.15	
Flandreau	Big Sioux								.75																									3.19	
Forestburg	James	.20	.04	.02					1.05					.08																				2.71	
Frederick	do.																																	1.75	
Ganvalley	Missouri			.16					.86					.16																				1.98	
Greenmont	Cheyenne																																	1.62	
Greenwood	Missouri	T.		.05					1.22																									2.02	
Hardy Ranger Sta.	Cheyenne																																	0.18	
Harveys Ranch	do.								.10																									2.69	
Hermosa	do.																																	2.27	
Highmore	Missouri		.04	T.	.06				.15																									2.95	
Hopewell	Cheyenne	.05		.10					.51																									2.14	
Howard	James		.20	T.	T.				.12																									3.26	
Howell	do.		.04	.02	.09				.68	.40																								1.69	
Huron	do.	.03		.10	.03				.84																									1.48	
Ipswich	do.		.10	T.	.47				.50																									1.54	
Kadoka	White		.03	.27					.48	.04				.52																				4.27	
Kennebec	Missouri			.15					.23	.12				.20																				4.43	
Kidder	James		.31		1.36				.70	.10																								3.22	
Kimball	Missouri		T.	.06	.06				2.29	.50																								1.24	
La Crosse	White																																	0.64	
La Delle	James		.07	.13					.50	.80																								3.25	
Lead	Cheyenne								.09																									1.30	
Manderson	White		.07						.36					.04																					

Stations.	Watershed.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
South Dakota.																																		
Watertown II	Big Sioux	.98	T.	.03		T.			.70	.04									.26													.11	1.87	
Wentworth	do			.22					1.04			.08							.19						1.02		T.		.03	.13		.38	3.09	
Wessington Springs	James	.01	.08	.13					1.05	.37		.23				T.			.52						12	.43		.04	.10				3.08	
White Lake	Missouri								1.25						.01				.45						50	.55				.18			2.94	
Winner	White																																	
Yankton	Missouri		.24			T.			.75	.79	.04	T.				.07		.01	T.			.09	.76	.04				T.	T.	.07			2.84	
Minnesota.																																		
Pipestone	Big Sioux			.22						.75									.14					.53		T.			.32	.43		.02	2.02	
Colorado.																																		
Akron	Republican			T.					.20					.66	.19		T.	.26		.08													1.39	
Albion Lake	South Platte		.75	*	*	1.26	.24						.48		.03	.14	.01	.23	.24	.04	.9	.31				.04	.06				.13		4.15	
Alma	do																																	
Arriba (near)	Republican	.03	.04		T.	T.	.03					T.	.04	.23	T.		.02	T.		.32	.01		.40								.05	.04	1.21	
Auldurst	South Platte	.08	1.02		.05	.04	.08	.06	T.	.10			1.06						.30	.25	.17	.12	.40		T.		1.10	.02	T.	.02	.01	.02	4.92	
Bennet (near)	do		.09	.30									.27	.27			.10		.08			.08											1.21	
Boulder	do		.34	.50	.06		.03	.02						.05	.20	.11			.27	.05					.06								1.09	
Burlington	Republican	.03	.11		.02	.10	.38				T.		.11			T.	.10	.31	.11	.15		.16					.05	T.		.33	.20		1.30	
Cassels	South Platte	1.00	.51	.43	.24	.31							T.			T.	.10	.31	.11	.15		.16					.05	T.					3.37	
Castle Rock	do		.73	.54	T.	.36	.05				T.		.19			.27	.19		.35	.15	T.												2.98	
Cheesman	do	T.	1.00	.15		.50	.70	.25	T.			.25	.75			T.	1.50	1.00	.25	.10	T.												6.55	
Cheyenne Wells	Smoky Hill		T.			.05	.03		.26					.55		.05	.05																2.87	
Cope	Republican				.05	.03			.26			.16			.14				.10			.24											.50	1.48
Corona	South Platte		.98	.51	.74	.82	.35	.08	.09					.17		.15	.12	.05	.															

TABLE 2.—Daily precipitation for July, 1911. District No. 6—Continued.

Stations.	Watershed.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Nebraska—Contd.																																		
Grant.....	Republican	.05	.08	T.		.12					.03				.07	.08		.28	.27	.09			.01								T.	1.08		
Greeley.....	Loup	T.	.09						1.90			.01	.07		.09	.06	.12			.09	.30										.03	2.76		
Halsey.....	do.	T.	.41		1.38				.26	.05		.12	.67		.11	.16	.07		.17	T.	T.	.05	.46								1.08	3.22		
Hartington.....	Missouri			T.	T.					1.30			.08	T.									.15	.55								T.	5.93	
Hastings.....	Blue					.31				1.05		.28		1.30		T.	1.04	1.15					.15	.80									1.54	
Hayes Center.....	Republican																																1.85	
Hay Springs.....	Niobrara		.08	.10					.32			T.	.44		.05		.09	.66		.41			.40	.10		T.							1.61	
Hebron.....	Blue				T.		.09			.38					1.30	.09	.66						.10	.70									3.38	
Heringford.....	Niobrara		.14	.12																			.95	.11									4.04	
Hillside.....	N. Platte	.08							.18			T.	.23		.33		.34		T.	T.			.72	1.50							.62	.02	1.47	
Holdrege.....	Republican			.03		.06	.03			1.00					.70		.23	.70	.05					.16									0.78	
Hooper.....	Elkhorn				T.					1.00		.15	.16																				1.10	
Hull (near).....	N. Platte		.25	.09						.06					.28	.03	.04						.28				T.						3.15	
Imperial.....	Republican	.02		.37	T.	T.				.06					.15																		1.18	
Kearney.....	Platte					.02				1.08				.33		.16	.28	1.00					.16										1.85	
Kimball.....	S. Platte		.12	T.			T.	.10	.15					.28					.13		.02	T.					.15						1.25	
Kirkwood.....	Niobrara			T.				.29				.17	.09						.26				.87	.06									1.83	
Kowanda.....	N. Platte	.09		.08			.04	.18															.29								.53		3.41	
Lexington.....	Platte						.01		.09	1.10					.52																		1.83	
Lincoln.....	do.					T.				.82		T.				.06								.63	.31								0.67	
Lodgepole.....	S. Platte				T.																												4.29	
Loup.....	Loup								1.75						.35		.19	.55					1.18										4.32	
Loyal.....	do.	T.	T.						.15					.90				.50	.09				2.47										0.84	
McCook.....	Republican				.07	.07				.27				.07						.09													1.40	
Madison.....	Elkhorn								1.05			T.	.25	T.																			4.92	
Marquette.....	Platte		T.	T.		1.40	.09			1.04					.20								1.84										3.12	
Mary.....	Loup	.07		.07					.05					1.55		.04							.48	1.37									6.38	
Mason City.....	do.					.28			.86							.77	.06		.11														2.46	
Minden.....	Blue		.02	.03	T.	.14			.49					.45									.07										1.84	
Mitchell.....	N. Platte		.24	.16				.22	.23																									1.78
Mullen.....	Loup	T.	T.	.10			.01	.14						.05		.04	.67						.43	.32	T.								52	
Nebraska City.....	Missouri					.10				.20				.08																			2.24	
Norfolk.....	Elkhorn		.12	.07					1.47			.86	.15																				3.96	
North Loup.....	Loup			.07		T.			1.72					.37		.03	.35	.50															3.31	
North Platte.....	Platte	.16	.08	.02		.18		.10	.50					.03																			4.52	
Oakdale.....	Elkhorn		.01	.24	T.	T.			1.71					.01		.03							.02	.02									1.08	
Omaha.....	Missouri					.08	T.			.62				.12	.04																		3.45	
Ord.....	Loup								1.15					.36																			2.19	
Pallisade.....	Republican	.05	.10							.08				.07																			5.74	
Pawnee City.....	Qt. Nemaha								.12			.12																					0.81	
Paxton.....	S. Platte	.02		.17		.03						.21			.01	.07	.10		.32				.08	.08									6.25	
Plymouth.....	Blue					.10			.12						.08	.11	.05		.27														5.79	
Purdum.....	Loup			.08					.22			2.00			.49																		16	
Ravenna.....	do.					.24	1.22																										3.74	
Reidland.....	Republican					.05	T.	T.		1.12				1.05																			6.43	
St. Libory.....	Loup				.06				.76					.30																			4.73	
St. Paul.....	do.			T.	.07	.06			1.07					.34																			3.62	
Santee.....	Missouri			1.11	.10					1.55	.01					.25						.01	.0	.55									3.70	
Sargent.....	Loup									.47					1.80		.12		.80														5.49	
Schuyler.....	Platte																																1.53	
Scott bluff.....	N. Platte	T.	.11	.08				.26	.02							.06			1.00	T.	T.	T.											3.30	
Seward.....	S. Platte					.15			1.00			.25																					1.22	
Sidney.....	Blue		.01									.05	T.		.47	.20	.24	.03	.08														2.25	
Springview.....	Niobrara								.30																									2.12
Stanton.....	Elkhorn									1.40		.50																						0.60
Stratton.....	Republican				.31																													1.98
Superior.....	do.					.12			1.35						1.70		.70		1.50														7.07	
Syracuse.....	L. Nemaha					.06			.25																								1.98	
Tekamah.....	Missouri					.03				1.70				.20	.04		.05																0.66	
Tobias.....	Blue						.03		.75						.09		.20	.41	.18														8.69	
Valentine.....	Niobrara		.02	.08					.16			.02	.10																				0.68	
Wahoo.....	Platte					.66			.62																								1.98	
Wakefield.....	Elkhorn			.07					.74			.08	T.																				1.62	
Walthill.....	Missouri					.02			.71				.15	.02																			2.10	
Watertown.....	Platte		.02			.12			1.10					.43			.53		.60														3.48	
Wanneta.....	Republican								.25						.15																		1.30	
Weepingwater.....	Missouri					T.			.																									

Stations.	Watershed.	Day of month.																																Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Iowa—Continued.																																			
Odebolt.	Missouri					.05			.21					.04	T.	.15		.04					.10	.12										0.71	
Onawa.	do.									1.25		.10		.02		.01	.08	.01	T.				.05	.75								T.	10	2.27	
Pacific Junction.	do.						.57			.22			.50											.33									T.	10	1.72
Rock Rapids.	Big Sioux.									1.07					.36									.92			1.07	T.		.39		T.		3.81	
Sheldon.	Floyd	1.05	.10	.10	.15					.75			T.		1.50	.10	.05	.10	.05				.20	.05	.02								T.	03	4.22
Sibley ||	Big Sioux.			.20		.05				.69	.02			.01		.19				.22				.17									T.	03	2.17
Sioux Center.	Floyd			T.	.09					.50			T.		T.	.22	T.	.51	.07				.07	.15									T.	03	1.64
Sioux City.	Missouri.		.05	.04						.10	.68	.01	T.			.05	T.	.04				.02	.06	.50									T.	07	1.50
Spencer.	Little Sioux.		.02			.06		.05			.25					.18							.03										T.	07	0.60
Thurman.	Missouri.					.11				.14		.03	.04	T.					.02				.62										T.	07	0.96
Washta.	Little Sioux.									1.25						.10							.05	.15									T.		2.55
Woodburn.	Chariton.		T.			.23	.01			T.			.12	T.		T.				T.			.08							.06			T.		0.50
Kansas.																																			
Abilene.	Smoky Hill.					.25				.36	T.					.22	.58	.52	.60					.22									.30	2.83	
Agricultural College.	Kansas.						T.			.05				T.		.22	T.	.51		T.				.43									.76	2.13	
Alton.	Solomon.		T.			.25				.25	.08	T.	.35	.38		.18		.75	T.				T.	1.31									.75	12	4.27
Athol.	Missouri.						T.			.50			.95	T.		.20		.05		.40				.75											

TABLE 2.—Daily precipitation for July, 1911. District No. 6—Continued.

Stations.	Watershed.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Missouri—Contd.																																	
Kansas City.	Missouri.								.20			.10			.09				.25				.06					.01	.59			.14	1.44
Kidder ||.	Grand.							.08				.02	.02						.15	.15			1.20					.12	.11			1.85	
Lamonte.	Missouri.						T.		.28			T.			T.	T.			.01	.30			T.					.89			.17	1.65	
Lebanon.	Osage.								.52	.04		.55						.10	.06	.87	.75			.17				.50			.30	3.86	
Lexington ||.	Missouri.								.05			.07		T.			.03		.08	.21			.10	.09				.55	1.56			2.74	
Liberty.	do.					.15			.32		T.	.11	T.				T.						.05					.64			.01	1.28	
Lockwood.	Osage.								T.	1.63							.07		.35	.77	.61			.68				1.91	2.59		1.00	9.61	
Marshall.	Missouri.					.23			T.	T.			T.			.04			T.	.12	.10			.26				.62			.24	1.61	
Maryville ||.	do.								.02			.22						.01					1.58					.04	1.50			3.37	
Mount Vernon.	Osage.						T.		T.	.85							.77	T.	.20	1.13	.33			.13				.50	3.25		.80	7.96	
Nevada.	do.								.12	.75		.45					.10	.33		.14	.14			.32				.28			.35	2.98	
Oregon.	Missouri.						T.	T.		T.		.06	.47				T.			.13			1.55					.24			.47	2.92	
Osceola ||.	Osage.																		.25		.12	.45					.23	1.60		.12	2.77		
Pattonsburg ||.	Grand.											.40											1.40					.38	.14			2.32	
Rolla.	Gasconade.								.01	.05		.16						.49		T.	.33	1.28			.01			.30	.01		.13	2.77	
St. Charles.	Missouri.								T.								.45		.76	T.			.23					.11	.01			1.56	
St. Joseph.	do.						T.		.30		T.	.43	.30	T.			.01			.30	T.			.05	2.50			.03	.22		.02	4.16	
St. Louis (1).	Mississippi.								.01	T.		T.				T.	.10			.11	T.			.34				T.	.08			0.64	
St. Louis (2).	do.										T.						.18			.18	T.			.29				T.	.09			0.74	
Sublett.	Chariton.								T.			.08		T.					1.25				4.00					.05	.75		.02	6.15	
Trenton.	Grand.					.60			T.		.27							.06		.05			1.86	.08			.47	.24			T.	3.63	
Unionville ||.	Chariton.				T.		.35			T.	.16	.18					T.	T.		.60			1.25	.26				.15	.10			3.05	
Warrensburg.	Missouri.						T.		.03		T.	.02				T.		T.		T.	.16			.13				1.19		T.	.67	2.20	
Warrenton ||.	do.									.11		.43					.06			.65		.03		.14	.16				.28	.40		2.35	
Warsaw.	Osage.					.05		T.				T.				T.		T.		.16	1.09			.05				2.65			1.23	5.23	

* Precipitation included in that of the next measurement.
 ‡ Separate dates of falls not recorded.

|| Precipitation for the 24 hours ending on the morning when it is measured.
 T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for July, 1911. District No. 6, Missouri Valley.

Date.	Wyoming.															Montana.												
	Basin.		Cheyenne.		Fort Laramie.		Lander.		Newcastle.		Pathfinder.		Sheridan.		Yellowstone Park.		Billings.		Dillon.		Havre.		Helena.		Lewis-town.		Malta.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	92	48	76	53	82	59	74	39	84	60	77	49	78	56	57	40	78	48	78	41	70	55	64	45	68	44	75	55
2....	90	45	70	55	84	60	78	40	85	62	82	52	84	43	68	38	85	44	80	43	77	53	75	41	77	43	79	49
3....	91	45	76	54	89	61	85	44	92	56	89	52	90	44	74	41	93	44	84	45	78	51	77	48	83	44	90	52
4....	93	50	85	56	95	56	87	48	92	65	88	50	88	50	75	46	89	54	87	45	81	53	77	51	80	48	90	52
5....	90	55	70	56	80	57	77	49	84	56	88	55	75	54	74	45	76	50	85	47	76	46	78	45	75	37	.....	.....
6....	94	56	71	54	85	50	86	40	86	52	91	58	91	51	80	46	98	55	80	52	96	56	93	53	91	43	95	48
7....	97	52	82	54	97	60	89	52	97	56	91	62	97	54	74	51	99	57	77	54	81	60	75	51	86	52	86	64
8....	92	43	83	50	99	70	75	52	85	56	84	63	64	42	53	35	71	50	74	37	68	53	59	45	68	46	95	54
9....	86	42	76	42	90	39	80	38	85	41	79	43	81	37	66	34	82	41	71	36	72	50	71	42	69	41	75	50
10....	86	50	85	50	92	48	85	40	90	51	88	45	82	41	72	36	86	38	79	37	74	51	76	45	74	42	75	43
11....	90	50	79	55	86	40	87	44	85	56	89	46	84	41	77	38	84	48	81	38	78	44	78	47	77	40	79	48
12....	91	50	83	54	92	56	83	52	88	56	92	40	81	44	75	40	80	48	81	39	75	51	75	41	76	46	75	46
13....	89	55	72	51	84	59	84	52	90	54	84	59	86	48	78	42	86	55	85	36	82	48	83	49	82	50	80	41
14....	88	52	80	55	93	52	83	50	90	62	90	51	89	48	75	47	91	48	82	50	89	52	84	56	86	48	90	48
15....	86	51	77	53	89	56	84	56	81	56	83	57	85	60	79	46	88	58	86	51	84	58	86	53	83	45	82	51
16....	88	50	78	48	87	47	80	51	84	58	83	59	80	55	77	46	85	56	87	52	86	55	84	56	80	51	83	48
17....	89	53	78	52	88	57	86	46	86	56	90	48	88	46	80	45	84	50	82	55	84	54	80	54	80	54	87	54
18....	86	50	69	54	81	56	71	52	81	54	85	52	60	48	65	46	65	50	80	46	70	49	63	47	65	45	72	52
19....	87	50	68	53	86	55	81	51	80	54	80	47	77	42	76	42	80	46	84	48	77	50	81	44	76	40	79	51
20....	89	52	78	54	90	54	81	50	81	56	90	50	78	49	76	49	80	49	82	46	76	51	81	51	80	45	72	50
21....	90	49	82	53	87	50	86	51	86	52	87	53	89	49	78	46	92	58	90	40	91	52	82	54	89	47	88	46
22....	89	49	79	53	90	63	84	54	80	56	86	62	83	57	73	50	85	57	82	44	79	56	75	55	79	40	83	53
23....	76	48	70	49	74	55	69	50	67	51	86	47	82	42	64	44	71	54	85	50	71	54	70	51	65	47	70	52
24....	79	47	69	47	77	43	73	53	78	38	75	42	74	36	73	37	78	40	87	48	80	44	79	46	78	38	76	40
25....	86	50	77	42	89	39	82	46	85	44	88	47	88	37	81	42	93	41	84	42	92	49	91	50	90	43	88	52
26....	89	52	83	54	97	53	84	50	92	54	81	59	87	50	71	50	93	55	80	40	83	58	83	56	86	55	90	57
27....	90	47	84	56	95	59	82	45	86	50	84	56	70	45	70	45	86	56	83	37	74	52	78	47	77	46	73	53
28....	89	48	84	47	93	49	85	42	80	46	87	47	83	38	76	36	87	44	85	37	85	54	82	53	89	44	84	52
29....	88	47	86	53	98	47	88	48	95	56	89	40	93	46	79	45	94	44	86	34	93	50	87	52	88	38	93	51
30....	86	49	82	54	90	66	80	54	92	64	86	46	70	52	69	41	80	59	84	36	80	54	73	47	73	49	73	53
31....	89	48	71	50	77	50	74	49	86	52	76	49	69	47	67	36	74	47	80	39	75	50	75	40	74	44	76	49
Mns..	88.5	49.4	77.5	52.0	85.8	54.3	81.4	48.3	85.6	54.2	85.4	51.5	80.8	46.8	72.6	42.7	84.6	49.7	82.0	43.2	79.2	52.1	78.0	49.2	78.8	45.0	81.5	50.5

Date.	Montana.				North Dakota.								South Dakota.															
	Miles City.		Poplar.		Berthold Agency.		Bismarck.		Dickinson.		Jamestown.		Williston.		Aberdeen.		Daviston.		Huron.		Kadoka.		Kimball.		Pierre.		Rapid City.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	80	60	77	60	82	64	86	66	80	64	75	70	77	60	88	79	88	64	100	74	98	71	99	75	99	81	88	69
2....	84	54	82	54	83	56	84	60	81	55	75	63	80	58	84	56	87	59	84	62	83	60	87	66	81	67	81	63
3....	97	55	85	48	93	46	90	50	93	48	70	54	93	48	82	52	91	43	82	57	82	60	83	60	78	61	90	62
4....	89	62	84	56	86	61	91	62	86	59	85	60	81	60	92	57	90	52	100	65	96	61	100	66	99	66	91	57
5....	77	56	89	42	77	64	77	56	76	56	85	55	74	53	82	63	77	61	91	61	82	65	93	72	83	65	75	55
6....	100	56	96	48	89	43	86	47	88	46	78	45	90	54	83	48	88	41	83	48	81	55	82	55	84	54	83	52
7....	102	72	98	70	102	66	99	66	101	66	90	55	98	63	94	52	102	65	94	60	97	61	95	60	95	69	98	67
8....	74	55	75	55	84	59	82	59	86	59	85	74	70	54	100	70	85	55	100	61	90	55	99	67	92	57	83	52
9....	79	50	77	62	80	45	82	51	79	44	78	50	75	50	82	53	85	38	83	56	87	49	82	52	87	52	86	48
10....	82	56	79	56	80	46	82	56	80	48	78	57	77	53	86	76	85	48	89	63	89	53	92	64	89	59	86	59
11....	81	51	78	44	78	45	77	49	77	47	77	51	74	46	80	52	84	42	82	54	84	58	82	59	85	58	81	56
12....	80	55	79	42	79	44	80	48	79	52	75	45	74	53	82	46	85	44	82	53	80	55	80	55	78	57	83	55
13....	83	53	84	43	82	41	80	47	80	39	75	43	78	46	82	52	85	40	83	55	82	53	83	55	85	57	80	54
14....	92	54	91	41	89	41	86	48	87	42	80	48	86	48	88	50	89	46	89	52	90	51	88	58	90	59	87	55
15....	86	62	83	54	82	44	81	49	83	49	80	52	78	51	87	53	88	54	90	54	93	58	90	60	92	58	88	62
16....	82	59	83	46	80	41	78	45	79	42	75	40	75	46	76	50	82	48	76	51	78	51	78	53	81	52	79	56
17....	92	56	81	51	81	38	79	44	84	44	71	46	76	50	75	47	87	38	78	53	81	49	80	62	85	36	82	52
18....	70	58	70	50	70	50	68	52	76	49	70	53	68	48	64	53	77	55	78	53	83	49	80	52	80	57	80	61
19....	82	48	79	43	80	40	78	44	79	3																		

TABLE 3.—Maximum and minimum temperatures at selected stations for July, 1911. District No. 6—Continued.

Date.	South Dakota.						Colorado.						Nebraska.															
	Sioux Falls. §§		Watertown. §§		Yankton.		Denver.		Wray.		Alma.		Bridgeport.		Grand Island.		Hay Springs.		Hebron.		Lincoln.		North Platte.		Oakdale.		Omaha.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	101	75	100	72	100	78	80	57	94	68	102	77	97	60	104	77	88	66	102	78	104	79	98	70	102	74	102	80
2.....	97	75	80	65	92	68	65	57	87	61	102	75	78	60	104	78	80	55	102	72	103	77	86	61	98	68	101	80
3.....	98	65	85	52	90	64	76	56	98	60	102	65	86	60	102	64	86	57	102	66	104	68	91	61	98	61	99	71
4.....	103	67	99	59	102	74	84	58	98	68	103	70	96	56	107	74	95	58	105	75	107	78	99	71	103	70	105	82
5.....	96	68	91	65	90	65	77	63	93	65	111	71	80	53	105	75	88	49	109	75	110	75	96	66	84	68	107	78
6.....	80	53	81	44	84	58	74	54	87	59	91	64	82	51	84	61	85	44	89	66	88	66	82	57	85	62	85	68
7.....	94	60	91	55	93	65	87	56	92	64	94	66	90	62	92	68	91	62	96	67	98	71	92	65	96	64	94	75
8.....	98	66	97	65	96	69	88	62	94	65	101	71	94	62	100	76	92	58	98	73	98	76	95	66	99	70	95	76
9.....	83	62	86	58	81	62	82	51	86	55	88	62	84	41	84	64	85	38	83	65	84	67	82	53	80	61	86	69
10.....	87	63	84	60	86	67	91	57	94	61	98	67	95	52	90	70	92	45	99	69	99	71	92	65	86	64	97	74
11.....	84	58	78	55	82	59	85	62	99	64	100	65	90	51	87	68	88	53	101	67	93	70	89	63	80	57	88	65
12.....	87	52	83	46	82	57	89	60	92	68	92	65	83	51	91	63	88	50	92	66	89	65	88	56	83	56	89	68
13.....	82	55	81	52	83	60	76	58	85	68	83	63	93	51	85	61	85	50	80	65	88	66	81	61	83	58	87	69
14.....	88	50	88	49	87	54	86	55	88	59	85	60	-----	-----	88	63	88	52	88	60	90	63	85	61	87	57	90	67
15.....	89	56	88	52	90	65	78	62	87	59	81	63	-----	-----	84	64	86	60	75	61	85	62	82	58	88	59	87	69
16.....	86	56	78	53	76	55	86	56	94	52	87	59	87	47	85	62	81	54	84	60	84	59	83	56	80	55	79	65
17.....	84	52	78	49	82	55	84	56	80	58	78	59	82	51	80	59	86	52	74	59	82	57	78	56	81	52	83	60
18.....	85	56	58	49	82	56	79	56	88	60	85	57	81	60	79	60	78	56	79	59	79	59	81	58	75	60	78	61
19.....	83	47	79	40	76	51	72	58	76	62	79	62	-----	-----	70	57	80	55	74	61	76	59	68	55	74	53	79	59
20.....	89	52	78	40	89	60	85	54	89	52	88	55	89	55	89	54	85	52	84	58	92	54	86	51	88	51	91	60
21.....	89	49	84	40	78	57	81	61	90	61	90	59	86	61	85	63	85	58	88	63	86	65	85	64	76	56	83	65
22.....	79	58	87	49	74	58	84	64	90	60	88	64	87	62	89	63	85	60	90	65	95	63	86	64	84	56	92	68
23.....	70	54	65	59	70	54	77	55	83	58	81	66	73	55	79	67	75	48	80	70	83	58	78	54	75	53	81	60
24.....	79	47	68	47	71	51	67	50	77	47	74	51	75	40	75	63	75	38	72	53	73	52	73	48	70	48	70	54
25.....	77	47	76	44	75	54	84	53	87	44	83	48	86	40	81	49	82	37	78	50	81	52	82	43	78	45	76	57
26.....	88	52	84	45	88	54	84	57	96	51	91	58	95	52	90	57	92	49	91	58	92	56	92	52	88	46	88	58
27.....	88	60	86	49	91	72	88	58	97	61	90	63	86	49	80	66	90	56	83	67	88	69	93	65	90	67	86	70
28.....	85	56	85	59	86	65	84	58	87	61	89	64	-----	-----	87	66	96	48	89	67	90	68	85	62	85	60	89	69
29.....	90	62	94	54	94	60	89	60	100	55	91	62	100	53	94	63	96	52	92	63	95	62	92	57	93	53	94	68
30.....	96	63	97	59	97	68	87	64	95	67	93	58	91	53	94	68	90	45	93	69	95	71	86	63	96	65	92	72
31.....	81	65	77	60	85	63	85	56	94	78	88	62	78	47	89	66	76	50	90	69	94	70	83	53	88	62	90	71
Means.	87.3	58.0	83.6	53.1	85.5	61.2	81.7	57.4	90.1	60.4	90.6	62.8	86.8 ^a	53.2 ^d	88.1	64.8	86.1	51.8	89.3	65.0	91.1	65.4	86.1	59.2	86.5	59.1	89.1	68.0

Date.	Nebraska.		Iowa.						Kansas.										Missouri.									
	Valentine.		Clarinda §§		Sibley. §§		Sioux City.		Colby.		Concordia.		Salina.		Topeka.		Wakeeney.		Columbia.		Kansas City.		St. Louis.		Unionville. §§			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.....	97	74	101	71	100	73	101	76	101	70	101	80	104	79	100	77	100	73	100	74	99	78	96	76	101	74		
2.....	78	61	106	71	99	73	99	73	100	64	102	75	103	74	101	76	100	72	101	72	102	80	97	79	108	75		
3.....	88	59	107	66	92	64	96	68	95	60	102	70	105	71	104	79	100	67	103	75	102	83	100	79	108	74		
4.....	98	69	107	72	101	66	103	77	105	68	104	80	106	75	106	81	103	71	103	74	103	81	101	82	104	75		
5.....	89	60	110	73	89	70	95	68	106	68	107	73	108	76	107	80	107	73	105	77	104	82	98	80	108	76		
6.....	82	53	76	69	84	59	84	63	88	60	87	70	100	72	88	75	92	67	94	74	88	78	93	76	96	68		
7.....	93	65	93	69	92	62	91	69	94	62	94	71	98	71	94	71	96	68	94	68	92	73	94	76	95	70		
8.....	93	72	95	73	96	69	95	75	100	67	97	74	99	75	94	75	100	69	94	72	93	74	90	76	93	72		
9.....	84	48	87	74	80	66	83	67	94	60	87	71	92	71	84	71	87	65	92	70	82	73	94	73	99	70		
10.....	89	60	96	67	88	56	89	67	104	60	100	70	99	70	98	71	100	61	90	71	94	73	91	77	97	68		
11.....	80	60	103	70	84	54	84	60	104	62	102	69	101	73	102	77	99	65	101	72	103	78	97	75	104	72		
12.....	84	54	93	60	84	48	84	57	94	58	94	72	92	70	85	70	93	61	83	66	84	67	89	72	94	60		
13.....	82	49	90	63	84	54	84	62	85	59	87	68	84	67	81	67	83	62	91	64	85	68	89	68	90	62		
14.....	85	65	90	60	84	49	87	53	91	55	90	60	94	60	90	64	91	60	90	60	90	67	89	70	93	60		
15.....	89	62	84	56	91	56	88	64	95	62	78	64	95	65	85	65	96	62	93	62	86	68	94	74	95	64		
16.....	76	52	84	60	74	51	76	57	91	54	88	61	89	58	88	62	94	59	86	67	87	65	83	67	84	60		
17.....	84	56	86	50	73	47	80	49	80	57	74	60	75	59	69	59	84	58	80	60	73	64	77	66	85	50		
18.....	82	59	80	50	77	53	79	59	95	51	83	60	83	57	84	56	89	53	86	52	85	58	81	62	86	48		
19.....	78	65	91	54	77	49	78	54	91	62	77	67	80	70	77	71	82	64	78	67	76	70	77	69	84	56		
20.....	84	60	78	61	87	54	89	53	88	59	88	63	85	68	85	68	88	64	84	67	84	70	80	71	91	60		
21.....	82	60	83	56	81	51	78	58	93	56	92	66	94	66	93	67	92	63	94	61	92	71	90	71	93	62		
22.....	82	63	92	60	81	53	76	57	91	56	89	67	86	66	92	70	90	68	92	66	92	70	89	68	90	55		
23.....	70	50	72	64	70	57	75	54	88	61	83	62	80	70	86	63	84	64	89	66	87	65	87	68	87	60		
24.....	73	44	69	51	67	47	70	52	81	50	75	35	74	57	76	57	76	53	75	57	75	59	75	62	72	53		
25.....	81	40	76	51	75	46	75	55	95	48	84	51	84	50	83	56	88	51	80	53	80	56	77	59	80	51		
26.....	93	58	82	42	85	47	86	51	95	62	92	66	92	64	90	57	90	61	85	51	88	64	80	58	85	50		
27.....	94	65	84	54	85	54	87	69	95	60	81	69	85	64	78	66	98	60	91	62	82	68	89	63	90	56		
28.....	86	57	73	64	85	59	87	66	90	65	91	69	93	64	79	70	92	66	76	63	81	65	80	68	80	60		
29.....	96	64	94	52	92	54	93	56	102	55	92	69	92	68	89	68	95	64	88	67	87	69	82	69	88	62		
30.....	93	68	94	65	96	58	95	71	98	65	95	71	96	70	91	68	98	63	89	65	89	68	86	66	86	65		
31.....	77	59	84	70	87	66	87	64	91	55	90	68	90	66	85	67	93	60	78	67	79	69	85	70	80	67		
Means.	85.2	58.1	80.0	61.9	85.2	56.9	86.3	62.1	94.2	59.7	90.5	67.3	92.1	67.3	89.2	68.5	93.2	63.5	89.8	65.9	88.5	70.1	88.1	70.6	91.6	63.1		

CLIMATOLOGICAL DATA FOR JULY, 1911.

DISTRICT No. 7, LOWER MISSISSIPPI VALLEY.

ISAAC M. CLINE, District Editor.

GENERAL SUMMARY.

Unseasonably warm weather prevailed throughout the district during the first decade, except that it was cool over the southern portion from the 7th to the 10th. From the 11th to the close of the month moderate temperatures prevailed generally, except that on the 26th, 30th, and 31st maximum temperatures were much above the normal over the Colorado and New Mexico areas.

Periods of precipitation were not well defined. In the Colorado area there were two periods of showers, 1st to the 8th, and 11th to the 31st, although there was scattered precipitation on every day during the month. In the New Mexico area there were four periods of precipitation, 1st to the 7th, 10th to the 14th, 18th to the 21st, 27th to the 29th, and scattered showers occurred in some part of the area every day. In the Texas area there was no period of general precipitation, but scattered light showers occurred every day, except on the 1st. In Oklahoma, Arkansas, and the Kansas, Missouri, and Tennessee areas, speaking broadly, there were two periods of precipitation, 6th to the 23d, and 27th to the 31st. Light showers occurred on other dates, but no rain fell in the Kansas area on the 25th and 26th, in the Missouri area on the 2d, 3d, and 25th to the 27th, and in the Tennessee area on the 1st to the 3d, 18th to the 19th, and 25th to the 27th, and in Arkansas on the 4th and 26th to the 27th. In Louisiana and the Mississippi area showers occurred daily from the 1st to the 25th, again on the 30th to the 31st, and light showers occurred on other days, but no rain fell on the 26th to the 28th in the Mississippi area and on the 27th in Louisiana. Taken as a whole the precipitation was well distributed and sufficient for agricultural needs, but at times in the southern portion of the district excessive rains interfered materially with outdoor work.

TEMPERATURE.

Mean temperatures for the month were below the normal in all parts of the district, the departures ranging from -0.2° to -4.6° , except that at a few stations in the eastern portion of the Colorado area, the central portion of Oklahoma, and the south-central portion of the Kansas area there was a slight excess. The greatest deficiency in mean temperature occurred in the southwestern portion of the New Mexico area and the northern portion of the Mississippi area. The warmest weather occurred generally about the middle of the first decade, and the maximum temperatures were above 100° at nearly all stations except in the Colorado and New Mexico areas and in Louisiana, where they were above 95° . In the Kansas and Texas areas and in Oklahoma the highest

readings ranged from 105° to 109° in most localities. The highest temperature for the district, 111° , occurred at La Crosse, Kans., and maximum temperatures of 110° were recorded at Burlington, Kans., and Frederick, Okla. These excessively high temperatures were accompanied by hot winds, which were very injurious to vegetation. The monthly minimum temperatures occurred generally about the middle of the last decade. The lowest readings were generally below 55° in the Colorado and New Mexico areas, and below 40° in some of the more elevated localities. Over the remainder of the district monthly minimum temperatures ranged from 50° to 60° , except that in the southern portion the lowest readings were generally between 60° and 70° . The lowest temperature recorded during the month was 33° at Elizabethtown, N. Mex. A minimum temperature of 34° was recorded at Lake Moraine, Colo. Taken as a whole temperature conditions during the month were mostly moderate and favorable to agricultural interests, except that some localities suffered from hot winds.

Monthly mean temperatures and departures from the normal for the various States and areas are reported as follows: Colorado area, 66.2° , -0.9° ; New Mexico area, 70.8° , -1.6° ; Texas area, 79.2° , -0.2° ; Kansas area, 78.8° , $+0.6^{\circ}$; Oklahoma, 80.7° , $+0.3^{\circ}$; Missouri area, 76.6° , $+0.8^{\circ}$; Tennessee area, 78.0° , -1.3° ; Arkansas, 78.4° , -1.8° ; Mississippi area, 78.5° , -2.0° ; Louisiana, 80.0° , -1.5° .

PRECIPITATION BY DRAINAGE AREAS.

Arkansas River and tributaries.—Heavy precipitation occurred over the greater portion of this drainage area. Over the headwaters of the Arkansas River in Colorado, the average precipitation from 35 stations was 4.04 inches, about 0.9 inch above the normal. The average precipitation from 45 stations in those portions of the Arkansas Valley proper that lie in Kansas and Oklahoma was 4.68 inches, about 1.1 inches above the normal. The average from 20 stations in the Cimarron Valley was 4.55 inches, about 1.6 inches above the normal. The precipitation was uniformly distributed throughout the Canadian Valley, the amounts from 70 stations averaging 4.33 inches, about 0.8 inch above the normal. Unusually heavy precipitation occurred over the Verdigris and Neosho Valleys; the average from 10 stations in the Verdigris Valley was 7.74 inches, about 2.5 inches above the normal, and the average from 18 stations in the Neosho Valley was 6.71 inches, about 3 inches in excess of the normal. Over that part of the Arkansas Valley below the Oklahoma-Arkansas line the amounts from 15 stations averaged 4.64 inches, about 0.6 inch above the normal.

Red River and tributaries.—The precipitation was unevenly distributed over those portions of the Red River Valley that lie in New Mexico, Texas, and Oklahoma where the amounts from 47 stations averaged 4.81 inches, about 1 inch above the normal. Over those portions of this valley below the Texas-Arkansas line the precipitation was excessive in some localities, four stations in Louisiana reporting more than 10 inches. The average from 17 stations was 7.93 inches, about 3.2 inches in excess of the normal.

Mississippi River south of St. Louis and small tributaries.—The precipitation was unevenly distributed over this drainage area, being excessive in some localities and light in others. In the immediate Mississippi Valley the amounts from 43 stations averaged 5.05 inches, about 0.4 inch above the normal. Six stations reported more than 10 inches. Over the Valley of the Meramec the precipitation averaged about 2 inches below the normal. The average for 22 stations in the White River Valley was 5.63 inches, about 1.2 inches above the normal. The average for 30 stations in the Yazoo Valley was 4.61 inches, about 0.7 inch above the normal, and the average for the Valley of the Big Black was 5.40 inches, about 0.8 inch above the normal. The average precipitation from 18 stations in the Ouachita Valley was 5.09 inches, about half an inch above the normal.

Louisiana coastal plain.—Heavy precipitation occurred generally over this area, the average from 33 stations being 10.53 inches, about 3.7 inches above the normal. More than 10 inches occurred at 19 stations.

Monthly precipitation and departures from the normal for the various States and parts of States (in inches) are reported as follows: Colorado area, 3.92, +0.78; New Mexico area, 4.16, +1.42; Texas area, 3.91, +0.38; Kansas area, 4.93, +0.93; Oklahoma, 5.64, +2.04; Missouri area, 4.66, +0.13; Tennessee area, 3.87, +0.04; Arkansas, 4.83, -0.97; Mississippi area, 5.69, +1.85; Louisiana, 9.37, +3.10.

RIVERS.

Over the upper Arkansas River there was little change in stages, there being a slightly increased flow of water at the close of the month. The lower Arkansas River was at a low stage during the greater part of the month and was not navigable until after the 25th. At Little Rock a stage of -0.5 foot was recorded on the 18th, being the lowest of record for July.

In Oklahoma there was a decided rise in practically all streams. The rivers were falling at the close of the month, but on the whole were carrying more water than at any time since November, 1909. In some localities there were overflows, but no damaging floods occurred.

There was a rise in the upper Red River during the latter half of the month, reaching the lower stretches that lie in Arkansas and Louisiana during the last decade.

Low stages prevailed in the White River during the month. There were slight rises in the Ouachita during the latter half of the month, but low stages prevailed during the greater portion.

NOTES.

Oklahoma (J. Pemberton Slaughter, section director).—The rainfall was abundant over nearly the entire State. With one exception, this was the wettest July of record.

Missouri (George Reeder, section director).—The drought of the present year has been the most widespread and disastrous since that of 1901. Vegetation, however, has greatly revived since the recent rains. The excessive heat during the first part of the month interfered with the shipping of live stock and perishable products.

Arkansas (H. F. Alciatore, section director).—On the whole, the weather was favorable for agricultural interests.

TABLE 1.—Climatological data for July, 1911. District No. 7, Lower Mississippi Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.					Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	
Colorado.																				
Blaine	Baca	3,935	19	76.7	+ 0.3	99	5	55	25	38	2.34	- 0.38	1.37	0	5	10	21	0	s.	M. M. Myers.
Buena Vista	Chaffee	7,955	11					39	31		2.44	+ 1.15	0.60	0	17	24	5	1	sw.	C. A. Short.
Calhan	El Paso	6,700	4	65.2		84	29	47	9	31	2.81		0.73	0	12	7	17	7	se.	H. B. Rice.
Canon City	Fremont	5,343	23	72.0	+ 1.3	93	10	54	9	38	1.87	+ 0.09	0.32	0	14	17	12	2	n.	G. C. Sherwood.
Colorado Springs	El Paso	6,098	31	65.4	- 2.5	82	10	47	31	32	2.17	- 0.67	0.64	0	12	4	17	10		Colorado College.
Cripple Creek	Teller	9,396	10																	F. G. Willis.
Cuchara Camps	Huerfano	8,200	2								6.33		2.62	0	13	6	10	15	sw.	George A. Mayes.
Eads	Kiowa	4,209	4								4.56		0.81	0	13	3	23	5	e.	W. H. Lauck.
Fairview	Custer	9,500	2								4.56		0.81	0	13	3	23	5	e.	Elizabeth L. Gray.
Fremont Experiment Station	El Paso	8,850	1	54.9		74	18	39	9	32	5.42		0.81	0	20	6	11	14	w.	U. S. Forest Service.
Garfield	Chaffee	9,510	1								4.63		1.12	T.	23	14	10	7		Lloyd N. Felton.
Hamp	Elbert	5,400	18	67.2		88	4	47	26	36	4.35	+ 1.92	1.20	0	10	13	12	6	s.	W. Hamp.
Hermit Lake	Custer	10,000	1								7.39		1.40	0	22	5	10	6	w.	John E. Graham.
Hoehne (near)	Las Animas	5,700	19	70.6	- 0.1	95	10	44	17	43	3.20	+ 0.95	1.70	0	16	18	6	7	w.	S. W. DeBusk.
Holly	Prowers	3,380	16	76.7	- 0.3	100	5	53	18	40	1.52	- 1.41	1.32	0	3	23	7	1	se.	Holly Sugar Co.
La Junta	Otero	4,052																		Fred B. Mason.
Lake Moraine	El Paso	10,265	17	52.0	- 1.5	69	31	34	26	29	7.03	+ 2.78	1.07	0	27	2	14	15	sw.	C. C. McReynolds.
Lamar	Prowers	3,592	21	78.0	+ 0.3	105	30	51	25	48	5.58		1.91	0	13	1	13	17	w.	J. T. Lawless.
Las Animas	Bent	3,899	43	76.6	- 0.5	99	3	52	25	42	2.73	+ 0.73	1.19	0	7	7	10	14	ne.	F. M. Tague.
La Veta Pass	Costilla	9,000	1								5.58		1.91	0	13	1	13	17	w.	Clara M. Wright.
Leadville	Lake	10,248	15	52.7	- 2.7	74	10	36	19	36	3.13	+ 1.90	0.75	0	19	4	16	11	n.	U. S. Weather Bureau.
Leadville (near)	Elbert	5,360	4	68.4		92	29	47	24	41	2.77		1.09	0	13	13	12	6	s.	F. L. Palmer.
Madrid	Las Animas										4.25		1.56	0	19					Thos. Sawyers.
Marshall Pass	Saguache	10,846	8								5.98		1.10	0	18	6	12	13	w.	William D. Lillard.
Monument	El Paso	7,200		62.6		91	22	43	10	40	4.59		1.00	0	16	8	13	10	w.	U. S. Forest Service.
North Lake	Las Animas	8,700	19								6.58	+ 3.40	1.00	0	18	15	15	1	nw.	James W. Ingmire.
Pueblo	Pueblo	4,734	23	72.6	- 1.6	93	22	54	25	36	2.81	+ 0.84	1.57	0	13	5	17	9	se.	U. S. Weather Bureau.
Rocky Ford (near)	Otero	4,177	22	74.4	- 0.1	95	4	54	25	37	1.51	- 1.25	0.57	0	6	18	9	4	w.	P. K. Blinn.
St. Elmo	Chaffee	9,500	2								4.30		0.85	0	16	9	14	8	sw.	Daniel Clark.
Salida	do	7,035	12	63.2	- 2.1	86	11	39	31	44	3.68	+ 2.23	0.60	0	15	16	6	9	w.	M. D. L. Buell.
Santa Clara	Huerfano	8,252	16	60.9	- 2.1	82	10	43	3	34	5.46	+ 2.22	1.04	0	22	0	26	5	s.	Lincoln G. Morris.
Sheridan Lake	Kiowa	4,065	9			99	23				2.05		0.80	0	3	19	1	8	s.	Howard Gamble.
Stonewall	Las Animas	8,000	5								7.93		0.80	0	23	4	6	21		G. A. Storz.
Trinidad	do	5,994	15								2.47	+ 0.03	0.58	0	10	21	8	2		Mrs. Mattie H. Butler.
Victor	Teller	10,100	7	54.9		72	9	39	24	27	6.12		1.10	0	19	13	16	3	e.	Fred Jones.
Vilas	Baca	3,935	20								1.49	- 0.50	0.70	0	3	14	14	3	sw.	Carrie Konkel.
Wayne	El Paso										3.17		0.60	0	13	8	14	9	se.	J. C. Groff.
Westcliffe	Custer	7,864	17	60.5 ^b	- 1.1	82	10	38	31	40 ^b	1.92	- 0.81	0.56	0	9	38	11 ^b	15 ^b	nw.	Zack Jordan.
Winfield	Chaffee	9,765	1								2.41		0.60	0	24	1	19	11	w.	John G. Payne.
Woodman Sanatorium	El Paso			65.4		84	15	46	25	34	3.29		0.68	0	13	6	12	13	s.	Dr. J. E. White.
Wortman	Lake	11,250	10								4.87	+ 1.51	0.75	0	19	0	19	12	nw.	George C. Wortman.
New Mexico.																				
Abbott	Mora	5,771	2			94	30				2.56		1.00	0	12	10	15	6	s.	Agt. E. P. & S. W. R. R.
Albert	Union	4,700	20	76.2	- 0.8	99	6	55	25	35	2.49	- 0.39	0.70	0	9				w.	Andrew Knell.
Aurora	Colfax	8,840	2								5.41		0.73	0	26	0	21	10	nw.	Miss J. Lucero.
Bell Ranch	San Miguel	4,500	12	76.0		98	5	56	25	39	5.34	+ 2.28	2.60	0	13	11	16	4	sw.	C. M. O'Donel.
Black Lake	Colfax	8,348	2								2.97		0.75	0	19	0	20	11	w.	Ralph T. Martinez.
Cabeza	San Miguel	4,406	2								2.30		1.05	0	6	2	27	2	sw.	Agt. E. P. & S. W. R. R.
Campana	do	4,493	2								1.78		0.82	0	8	2	20	3	sw.	Do.
Chacon	Mora	9,000	2								5.28		0.91	0	15	1	24	6		Alfred Lucero.
Cimarron (near)	Colfax	6,385	7	66.2		84	8	49	30	34	5.68		0.94	0	18	6	10	15	se.	William French.
Clayton	Union	5,178	6	72.7 ^b		95	5	53 ^b	26	35	5.81		1.13	0	11	14	13	4	w.	Dr. W. W. Chilton.
Clovis	Curry	4,129	6	76.9		100	5	55	25	35	3.39		0.85	0	9	19	6	6	ne.	J. H. Barry.
Cuervo	Guadalupe	4,849	2	76.0		96	30	53	25	31	1.79		0.55	0	10	6	22	3	sw.	Agt. E. P. & S. W. R. R.
Dawson	Colfax	6,396	2								7.09		2.42	0	18	0	22	9		Do.
Elizabethtown	do	8,465	5	56.6		77	10	33	31	40	5.30		0.83	0	17	5	16	10	se.	Miss M. Carrington.
Folsom	Union	6,399	11	67.8	- 0.5	86	5	49	25	34	6.71	+ 3.92	1.20	0	15	13	15	3	sw.	David Rope.
Fort Union	Mora	6,835	51	64.4	- 4.6	82	31	40	28	36	3.47	- 0.45	0.60	0	14	10	18	3	sw.	M. C. Needham.
Hayden	Union	4,444	2	74.6		96	5	54	25	36	3.31		0.54	0	14	2	24	5	s.	James B. Dickson.
Hoosier Ranch	Mora										3.48		1.64	0	8	5	22	4	sw.	W. H. Guthman.
Johnson Park	Colfax	6,722	2								5.46		1.46	0	11	6	17	8	sw.	A. J. Meloch, Jr.
Kappus	Quay	4,000									3.28		1.10	0	10					Anthony Kappus.
Lake Alice	Colfax	7,160	2								4.90		0.88	0	17	1	17	13	s.	John Campbell.
Logan	Quay	3,851	5	77.7		98	5	59	25	37	5.54		2.24	0	9	20	10	1	se.	John B. Reneau.
Los Alamos	San Miguel	6,789	6																	Antonio Pacheco.
Lykins (near)	Roosevelt	5,000	1								2.63		0.99	0	6	9	19	3	se.	J. G. Buchanan.
Maxwell (near)	Colfax	5,894	4								5.53		1.21	0	15					D. N. Jackson.
Melrose	Curry	4,400	3								2.72		1.01	0	9					Dr. B. M. Porter.
Miami Ranch	Colfax	6,000	3																	Farmers' Development Co.
Montoya	Quay	4,335	2								2.62		1.00	0	6	0	7	24	w.	Agt. E. P. & S. W. R. R.
Mount Dora (near)	Union	5,600	1	71.8		100	9	54	25	40	2.78		0.88	0	10	6	17	8	sw.	Edward F. Grygla.
Nara Visa	Quay	4,225	5	76.4		98	5	55	26	38	2.05		1.32	0	7	24	7	0	sw.	George Bringle.
Ocate	Mora	7,500									6.29		1.35	0	16	4	15	12	sw.	Mrs. John R. Strong.
Optimo	do	6,400																		R. K. Odell.
Pasamonte	Union		1																	J. J. Herring.
Pleasant View	Mora										2.70		0.50	0	12	12	18	1		R. W. Boulware.
Portales	Roosevelt	4,004																		Portales Irrigation Co.
Raton	Colfax	6,660	13	67.5	- 1.9	92	5	50	24	40	5.92	+ 3.45	1.02	0	19	3	20	8	sw.	Prof. R. C. Crum.
Rociada	San Miguel	8,200	7	61.7		81	18	44	31	34	7.15		0.94	0	24	3	23	5	w.	J. Ernest Dailey.
Rosebud	Union	4,500	1								3.19		0.91	0	10					H. A. Nachtrieb.
Roy	Mora	5,884	2								3.01									

TABLE 1.—*Climatological data for July, 1911. District No. 7—Continued.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.			Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
Texas.																					
Amarillo	Potter	3,676	19	75.4	- 0.7	96	5	54	25	29	3.85	+ 0.68	1.15	0	18	7	19	5	se.	U. S. Weather Bureau.	
Archer City	Archer	1	1								1.87		0.77	0	5	18	9	4	s.	Charles H. Thuman.	
Arthur City	Lamar	590	19								2.80	- 1.47	0.90	0	7	12	5	14	s.	V. V. Bright.	
Bonham	Fannin	566	8	83.4		107	3	50	26	32	4.83		2.47	0	9	13	9	9		H. M. Norman.	
Canadian	Hemphill	2,339	4								3.75									Canadian Academy.	
Childress	Childress	1,809	18								3.00	+ 0.35	1.00	0	6	8	10	13	s.	W. E. Davis.	
Chillicothe	Hardeman	1,406	3								3.35		1.04	0	11					A. B. Connor.	
Clarendon	Donley	2,719	6	78.4		104	5†	55	25	36	5.59		2.20	0	10	13	5	13	se.	Whitfield Carhart.	
Clarksville	Red River	442	11	83.8	+ 0.7	104	5	58	31	42	2.83	- 2.82	1.25	0	4	4	25	2		J. W. O'Neill.	
Claude	Armstrong	3,397	6								4.67		1.98	0	7					Ft. W. & D. C. Ry.	
Dalhart	Dallam	3,998	6	76.4		97	5	54	25	34	3.60		2.01	0	11	10	7	14	sw.	F. L. Kennard.	
Denison	Grayson	1	11								2.60	- 1.80	0.80	0	9	8	2	21	s.	E. B. Wilson.	
Finley	Finley	1	1								1.18		0.68	0	2	20	0	11	s.	Robert L. Smith.	
Henrietta	Clay	915	19	83.3	- 0.4	106	5	58	14	32	5.89	+ 3.69	1.75	0	14	8	10	13	s.	C. K. Brown.	
Hereford	Deaf Smith	3,750	6																	A. C. Elliott.	
Lewis Ferry	Bowie	2	2								3.80		1.50	0	5	11	0	20	s.	P. G. Ruff.	
Memphis	Hall	2,067	6	78.6		101	5†	60	26	33	5.15		1.05	0	12	10	9	12		R. S. Chamberlain.	
Miami	Roberts	2,743	5	79.4		105	5	54	25	35	5.29		1.35	0	12	17	8	6	s.	R. A. Gibbs.	
Mobeetie	Wheeler	17	17												0	9	20	2	9	se.	J. E. Kinney.
Nazareth	Castro	5	5																	Dr. W. J. Joss.	
Ochiltree	Ochiltree	3	3								3.95		2.00	0	6					Rev. P. A. Kaelin.	
Pampa	Gray	3,226	2	78.0		101	4	53	24	38	5.67		3.00	0	10					S. J. Allen.	
Paris	Lamar	592	22	81.7	- 0.7	104	5	60	25†	31	2.92	- 0.32	0.97	0	12	12	3	16	s.	B. E. Finley.	
Plemons	Hutchinson	4	4	78.2		99	5	59	15	34	2.34		0.72	0	7	13	13	5	s.	Robert A. Miller.	
Quanah	Hardeman	1,563	6	82.3		108	5	58	25	30	3.75		0.80	0	8	11	6	14	s.	C. S. Solomon.	
Ringo Crossing	Hopkins	1	1								4.87		1.40	0	5					William H. Crawford.	
Romero	Hartley	1	1	76.0		97	5	54	25	36	3.05		0.70	0	11	12	17	2	s.	H. J. Palmer.	
Sherman	Grayson	745	18	83.6	+ 1.3	102	5	65	25	35	3.36	- 1.34	1.00	0	9	6	6	19	s.	R. A. Gibbs.	
Stratford	Sherman	3,099	6	76.7		101	5	55	25	35	4.96		1.31	0	10	11	7	13	sw.	J. W. Elliott.	
Sulphur Springs	Hopkins	530	17								2.96		1.86	0	3					John Neeley.	
Texline	Dallam	4,094	6								6.60	+ 2.43	1.80	0	15	2	29	0	s.	Ft. W. & D. C. Ry.	
Tulia	Swisher	3,501	13	76.0		98	5	50	25	34	4.66	+ 1.97	1.76	0	11	20	8	3	s.	Lou Mulhall.	
Wichita Falls	Wichita	958	19								3.85		1.02	0	9	7	21	3	se.	R. A. Thompson.	
Winfield	Titus	1	1																	J. C. Bostick.	
Kansas.																					
Alden	Rice	1,684	1								4.46		1.27	0	8	13a	0a	17a	ne.	L. B. Wait.	
Anthony	Harper	1,329	14	79.2		108	5	52	25	36	4.81	+ 1.10	1.27	0	10	3	22	6	sw.	R. H. Beebe.	
Ashtabula	Clark	1,951	23	80.0	+ 0.5	109	5	52	25	42	5.08	+ 1.09	2.52	0	14	6	22	3	se.	C. W. Carson.	
Burlington	Colley	1,010	18	79.4	+ 1.3	110	5	49	25	38	4.16	+ 0.25	1.15	0	10	0	30	1	se.	O. E. Sanford.	
Chanute	Neosho	940	7	78.2		107	3	50	25	35	8.40		1.91	0	12	7	21	3	se.	C. W. Brown.	
Coldwater	Comanche	2,090	14	79.4	+ 0.4	104	5	55	24†	35	1.22	- 2.22	0.46	0	11	20	7	4	se.	J. L. Stanley.	
Columbus	Cherokee	898	21	78.1	+ 0.3	105	3†	52	25	32	8.57	+ 3.36	2.05	0	13	15	7	9	s.	O. E. Skinner.	
Coolidge	Hamilton	3,348	14	77.2	+ 0.6	109	5	47	25	52	1.05	- 1.97	0.30	0	5	9	22	0	se.	W. R. Padley.	
Cottonwood Falls	Chase	7	7	78.8		108	5	50	25	39	5.18		1.24	0	13	18	4	9	sw.	E. B. Greene.	
Council Grove	Morris	1,234	2	79.1		106	5	49	25	36	2.74		0.87	0	10	2	25	4	s.	J. P. Blackledge.	
Cunningham	Kingman	1,680	27	78.6	+ 0.5	106	5	51	25	34	3.79	- 0.28	1.70	0	7	9	19	3	s.	W. H. Morton.	
Doyle City	Ford	2,513	37	76.8	- 0.9	102	5	54	25	32	7.29	+ 3.91	3.51	0	10	10	15	6	se.	U. S. Weather Bureau.	
Eldorado	Butler	1,291	9	79.4		105	5	49	25	33	5.58		1.55	0	10	16	11	4	s.	W. Y. Miller.	
Ellinwood	Barton	1,790	36	78.5	+ 1.0	106	5	48	25	39	3.79	- 0.19	1.35	0	11	1	29	1	sw.	Martin Musil.	
Emporia	Lyons	1,138	30	78.7	+ 0.4	107	5	53	25	31	3.27	- 0.46	0.83	0	12	13	15	3	s.	W. H. Boyles.	
Eureka	Greenwood	1,079	15	78.0		108	4†	50	25	39	8.65	+ 3.95	2.60	0	8	11	17	3		W. S. Moonlight.	
Fall River	do	925	15	78.8	+ 0.7	108	5	49	25	48	9.52	+ 3.67	2.00	0	12	19	9	3	s.	J. McDaniel.	
Fargo	Seward	1	1								3.68		1.00	0	9	0	28	3	se.	N. B. Swink.	
Frederick	Wilson	864	8	79.8		108	3	54	25	34	8.05		2.19	0	16	11	10	10	se.	B. W. Holmes.	
Garden City	Finney	2,836	22	79.2	+ 1.8	103	5	48	25	42	3.51	+ 0.26	1.90	0	8	11	19	1	s.	B. F. Stocks.	
Great Bend	Barton	1,850	2								4.00		1.96	0	10	24	3	4	sw.	I. Pritchard.	
Greensburg	Kiowa	2,235	4	77.8		103	5	52	25	34	2.21		0.60	0	8	23	6	2	s.	C. C. Raymond.	
Grenola	Elk	1,116	23	78.4	+ 0.5	106	5	51	25	35	8.17	+ 4.65	2.32	0	14	9	13	9	sw.	W. H. Lawyer.	
Hess	Gray	2,700	5	74.8a		98a	29	51a	24	35	3.36		0.90	0	7	0a	22a	2a	se.	Fred Mallonee.	
Howard	Elk	1,112	4								12.81		2.65	0	14	19	4	8	sw.	J. W. Eby.	
Hugoton	Stevens	7	7	77.2		107	5	44	25	50	1.47		0.60	0	8	14	14	3	se.	E. M. Anderson.	
Hutchinson	Reno	1,535	21	79.2	+ 1.8	107	5	50	25	36	3.48	- 0.74	0.88	0	11	17	11	3	sw.	E. S. Webster.	
Independence	Montgomery	800	37	80.1	- 0.6	109	5	51	25	39	5.87	+ 1.55	1.75	0	11	13	9	9	s.	F. L. Kenoyer.	
Iola	Allen	984	5	77.9	- 0.2	105	4	52	25	31	5.70	+ 1.78	1.57	0	10	17	7	7	s.	U. S. Weather Bureau.	
Irene	Hamilton	3,440	1	78.0		103	5	54	25	45	1.29		0.64	0	7	3	13	15	s.	N. M. Herbig.	
Jetmore	Hodgeman	2,268	10	78.2		107	5	48	25	39	3.35	+ 0.15	2.15	0	6	4	24	3	s.	James Aiken.	
Kingman	Kingman	1,504	3	80.2		108	5	50	25	35	3.81		1.02	0	10	7	23	1	sw.	B. B. Anawalt.	
La Crosse	Rush	2,061	9	74.2		108	5	45	25	45	2.88		1.15	0	9	25	5	1	se.	Rodney Torrey.	
Lakin	Kearney	2,993	21	78.4	+ 1.6	108	5	46	25	50	0.76	- 1.65	0.42	0	2	14	16	1	se.	C. H. Longstreth.	
Larned	Pawnee	2,090	26	79.4		107	5	52	24	36	2.13	- 1.58	0.85	0	11	22	6	3	s.	H. H. Wolcott.	
Lebo	Coffey	1,138	25	78.4	+ 0.6	108	5	52	25	34	4.94	+ 0.87	2.61	0	11	13	12	6	s.	J. J. Bowman.	
Le Roy	do	960	2								3.67		0.93	0	11	17	1	13	s.	F. W. Schmitt.	
Liberal	Seward	2,843	4	77.8		102	5	51	25	35	5.20		2.10	0	10	16	3	12	sw.	Dr. R. T. Nichols.	
Macksville	Stafford	2,032	22	77.8	+ 0.6	104	5	50	25	35	2.88	- 0.79	1.12	0	8	10	11	10	s.	Mrs. Nella Poling.	
McPherson	McPherson	1,495	22	79.2	+ 1.1	109	5	50	25	38	4.52	+ 0.63	0.87	0	12	18	4	9	sw.	Ed. F. Haberlein.	
Malison	Greenwood	1,074	10	77.6		110	5	46	25	41	5.19	- 0.02	1.20	0	13	4	26	1	se.	C. A. David.	
Marion	Marion	1,310	18	79.0	- 0.6	108	5	49	25	37	6.65	+ 3.59	3.07	0	11	6	23	2	s.	Jerry Forney.	
Medicine Lodge	Barber	1,259	18	78																	

TABLE 1.—*Climatological data for July, 1911. District No. 7—Continued.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.			Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.			Number of partly cloudy days.	Number of overcast days.
Oklahoma.																				
Ada.	Pontotoc.	1,001	3	80.7		106	5	60	24	35	6.89		4.16	0	12	8	17	6	s.	R. J. Brooks.
Alva.	Woods.	1,350	6	80.0		106	5	53	25	34	6.28		3.40	0	7	12	0	19	s.	S. A. Stech.
Apache.	Caldo.	1,255	2	81.0		106	5	54	25	36	8.03		2.90	0	12	13	14	4	se.	G. D. Teeter.
Arapaho.	Custer.	1,575	17	78.7	- 1.4	106	5	44	24	44	7.14	+ 3.46	1.90	0	12	14	14	3	s.	J. C. Brower.
Ardmore.	Carter.	872	10	83.4	+ 1.2	108	4	58	25	33	3.13	+ 0.07	0.56	0	12	12	5	14	s.	H. T. Nisbett.
Arnett.	Ellis.	2,136	7	77.2		103	5	52	25	33	6.90		1.90	0	6	13	14	4	s.	C. H. Holmes.
Bartlesville.	Washington.	687	3	80.4		109	4	54	25	34	6.14		3.71	0	10	9	11	11	s.	Dr. A. P. Owens.
Beaver.	Beaver.	2,500	15	81.8	+ 1.2	107	5	53	25	36	2.63	- 0.14	2.01	0	8	19	10	2	s.	W. C. Frazer.
Blackburn.	Pawnee.	800	10	82.3	+ 2.0	109	5	54	25	36	4.40	+ 2.29	1.03	0	9	18	3	2	se.	John Landis.
Cache.	Comanche.	1,350	5	78.5		105	5	52	25	35	8.66		2.10	0	9	14	11	6	s.	Mrs. Frank Rush.
Calvin.	Hughes.	713	6								4.56		1.70	0	10	14	0	17	s.	Thomas Purcell.
Chandler.	Lincoln.	865	10	81.0	- 0.6	107	5	53	25	32	3.19	+ 0.38	1.12	0	7	17	1	13	s.	Chas. L. Kern.
Chattanooga.	Comanche.	1,150	5	81.5		106	5	58	25	34	5.57		1.27	0	12	10	17	4	se.	Squire Humble.
Chickasha.	Grady.	1,091	10	82.5	- 0.2	108	5	55	25	35	6.22	+ 4.03	2.57	0	11	23	8	0	s.	J. C. Good.
Cloud Chief.	Washita.	1,400	9	81.5		109	5	55	25	34	6.72		1.76	0	11	11	11	9	s.	J. P. Stutzman.
Durant.	Bryan.	643	10	82.0	+ 1.0	105	3	58	25	33	3.02	- 1.32	0.84	0	11	12	7	12	s.	Nelson Houk.
Eldorado.	Jackson.	1,456	4	82.4		105	5	58	26	33	3.49		1.25	0	10	2	24	5	se.	T. W. Lanham.
El Reno.	Canadian.	1,400	20	82.6	- 2.8	108	4	57	25	32	3.90	+ 0.83	1.40	0	12	16	13	2	s.	Rose E. Walker.
Enid.	Garfield.	1,269	10	81.2	0.0	108	5	56	26	36	9.30	+ 6.05	2.57	0	11	18	7	6	s.	Uri B. Worcester.
Erick.	Beckham.	2,058	6	80.0		107	5	59	25	39	8.45		3.33	0	10	12	14	5	s.	A. W. Hanes.
Fairland.	Ottawa.	839	11	78.8	+ 0.2	105	3	51	24	34	10.05	+ 6.97	3.30	0	12	5	20	6	s.	C. W. Prier.
Fort Gibson.	Muskogee.	556	6								3.46		1.33	0	9	14	2	15	s.	John T. Welsh.
Frederick.	Tillman.	1,293	5	82.3		110	6	59	25	34	6.59		1.94	0	11	10	13	8	s.	B. B. Bradley.
Goodwell.	Texas.	3,300	1	79.0		101	5	56	25	36	3.65		1.37	0	11				s.	S. W. Black.
Guthrie.	Logan.	1,0																		

TABLE 1.—Klimatological data for July, 1911. District No. 7—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.					Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Kentucky.																				
Blandville.	Ballard.	445	29	77.1	- 0.8	97	4	55	25	29	3.11	-0.78	1.39	0	8	4	20	7	sw.	E. W. Horr.
Lynnville.	Graves.		8																	
Tennessee.																				
Arlington.	Shelby.		29	78.0	- 1.4	98	3	56	25	34	7.30	+ 3.56	2.40	0	14	9	11	11	s.	A. Thomas B. Etheridge.
Bolivar.	Hardeman.	450	24	77.2	- 1.3	99	3	56	25	30	5.12	+ 1.29	2.35	0	9	15	5	11	s.	Miss Mary A. Smith.
Brownsville.	Haywood.	361	26	77.0	- 2.3	97	3	55	27	32	4.49	+ 0.99	2.25	0	6	14	7	10	s.	Miss Hattie N. Moses.
Covington.	Tipton.	311	24	77.8	- 1.6	96	4	56	25	28	2.05	+ 1.27	1.10	0	5	16	0	15	s.	James S. Ruffin.
Dyersburg.	Dyer.	310	28	79.0	- 0.9	99	4	57	25	30	5.30	+ 1.65	2.00	0	7	20	5	6	se.	Miss Martha A. Sinclair.
Jackson.	Madison.	450	18	77.9	- 1.2	102	4	52	25	40	2.97	+ 1.84	1.04	0	8	19	4	8	sw.	Shelby A. Robert.
Kenton.	Obion.	325	9	78.2	- 1.2	102	4	53	25	32	4.30	+ 1.65	1.15	0	9	17	7	7	s.	George S. Martin.
Memphis.	Shelby.	409	40	78.6	- 2.1	97	3	62	25	19	3.77	+ 0.26	1.30	0	13	7	7	17	s.	U. S. Weather Bureau.
Milan.	Gibson.	440	28	76.9	- 2.3	97	3	55	25	29	3.22	+ 0.55	1.25	0	7	11	2	18	s.	Orlando F. Cantwell.
Trenton.	do.	345	28	77.4	- 0.3	101	2	50	25	40	2.40	+ 0.98	1.18	0	5	21	5	5	sw.	F. L. Dennison.
Union City.	Obion.	360	13	80.0	+ 0.7	107	4	54	25	43	1.69	+ 2.70	0.70	0	7	14	13	4	sw.	J. B. Kinzey.
Arkansas.																				
Alicia.	Lawrence.		7	77.2		98	4	55	25	30	4.25		2.05	0	6	18	9	4	s.	McCullough & Guelk.
Amity.	Clark.	250	19																	J. W. Campbell.
Arkadelphia (near).	do.	250	4	80.2		106	3	58		35	4.78		2.09	0	9					J. A. Ross.
Arkansas City.	Desha.	145	28								3.70	- 0.18	1.10	0	11					W. C. Blundell.
Batesville.	Independence.	271	6								4.78		2.28	0	10					Lelia I. Peter.
Bee Branch.	Van Buren.		19	78.2	- 1.4	100	2	52	25	36	5.45	+ 1.74	1.45	0	10	9	10	12		J. E. Scanlan.
Benton.	Saline.	283	4																	P. B. Jackson.
Bentonville.	Benton.	1,303	6	76.6	- 1.9	100	5	51	25	30	7.44	+ 3.13	2.24	0	13	13	9	9	s.	U. S. Weather Bureau.
Bergman.	Boone.	1,324	15	73.0	- 2.9	102	4	43	25	40	4.34	+ 0.42	1.75	0	10	18	8	5	se.	John T. Maxey.
Black Rock.	Lawrence.	259	7								4.24		1.40	0	5					S. J. Howe.
Brinkley.	Monroe.	226	25	78.5	- 1.3	102	4	56	25	32	6.38	+ 2.41	1.88	0	10					H. L. D. Whitson.
Calico Rock.	Izard.	361	7								4.23		1.30	0	9					W. H. Stoner.
Camden.	Ouachita.	158	26	80.0	- 1.1	98	3	54	27	35	2.42	- 1.88	0.63	0	13					R. H. Quarterman.
Centerpoint.	Howard.	470	11	80.4	- 1.2	103	3	54	26	34	5.80	+ 0.71	2.00	0	11	7	7	17	se.	J. M. Huddleston.
Clarendon.	Monroe.	171	7								7.01		1.48	0	17					Mrs. B. E. Bishop.
Conway.	Faulkner.	309	28	79.8	- 0.6	103	3	55	26	34	4.51	+ 0.94	1.45	0	13	8	18	5	se.	G. H. Burr.
Corning.	Yell.	293	19	77.5	- 1.4	99	4	54	25	30	6.11	+ 2.68	3.18	0	11	12	12	7	s.	Jacob Brobst.
Dardanelle.	Clay.	330	25	79.4		102	4	55	25	31	2.92	- 1.30	1.00	0	10					A. Bernard.
Dodd City.	Marion.	1,175	30	77.3	- 2.7	100		52		36	7.08	+ 2.10	3.22	0	7					Neal Dodd.
Dutton.	Madison.		9																	J. M. Ricketts.
Eldorado.	Union.	265	7	79.1		97	1	57	27	27	5.06		1.60	0	13					Jeff J. Babb.
England.	Lonoke.		5	79.0		100	1	55	25	32	3.53		0.62	0	12	8	4	19	se.	J. C. Chenaault.
Eureka Springs.	Carroll.	1,465	9	77.0		99	4	50	25	33	5.94		1.15	0	9	5	24	2	sw.	George W. Nicholds.
Fayetteville.	Washington.	1,451	22	77.6	+ 0.2	102	3	51	25	34	5.06	+ 0.25	2.15	0	12	6	21	4	s.	University of Arkansas.
Fordeye.	Dallas.		78.9			98	4	58	26	27	4.14		0.75	0	11	7	20	4	s.	A. Tredick.
Fort Smith.	Sebastian.	481	29	80.6	- 0.4	102	4	58	25	28	5.38	+ 1.54	2.21	0	14	7	9	15	e.	U. S. Weather Bureau.
Fulton.	Hempstead.	204	7								3.73		1.08	0	8					B. C. Logan.
Hardy.	Sharp.	643	13	77.2	- 1.3	98	4	56	25	30	3.28	- 0.82	1.17	0	13	3	15	13	sw.	C. A. Caywood.
Helena.	Phillips.	182	26	78.2	- 3.2	97	3	56	26	29	3.78	- 0.24	1.12	0	14					B. F. Modisett.
Hot Springs.	Garland.	600	5	79.2		101	4	53	25	32	6.20		1.70	0	10	13	12	6	s.	Hot Springs Water Co.
Huttig.	Union.	85	4	79.6		99	2	57		28	3.93		0.83	0	17	1	29	1	s.	C. A. Berry.
Jonesboro.	Craighead.	345	16	77.4	- 3.4	101	4	50	25	40	5.88	+ 2.65	1.80	0	10	7	20	4	s.	Benedictine Sisters.
Junction.	Union.		18	79.2	- 1.4	102	4	58	26	32	8.97	+ 4.73	2.32	0	9	13	5	13	sw.	J. A. Lowerback.
Lake Farm.	Jefferson.	195	4	78.6		101	3	52	20	37	4.97		1.51	0	11	8	16	7	sw.	R. H. Gillispie.
Lewisville.	Lafayette.	262	8	81.1		105	4	59	25	31	4.44		1.00	0	13	5	15	11		F. W. Youmans.
Little Rock.	Pulaski.	357	32	78.6	- 2.0	97	4	62	25	21	3.24	- 0.75	1.28	0	11	4	5	22	e.	U. S. Weather Bureau.
Lutherville.	Johnson.	775	14	78.4	- 0.4	99	4	58	25	28	3.48	- 0.40	0.66	0	14	11	13	7	sw.	G. H. Hentschel.
Malvern.	Hot Spring.	277	24	78.4	- 2.8	102	3	55	25	31	5.06	+ 2.08	2.15	0	11					Miss L. C. Smith.
Mammoth Spring.	Fulton.	512	7	77.0		97	2	51	25	34	3.80		1.32	0	12	7	20	4		F. Wallick.
Marked Tree.	Poinsett.	229	7								4.50		2.60	0	8					L. Smith.
Mena.	Polk.	1,100	25	77.4	- 3.3	96	2	58	25	25	3.77	- 1.06	2.04	0	9	10	13	8	w.	R. R. St. John.
Newport.	Jackson.	231	27	78.8	- 1.8	99	4	57	25	29	5.50	+ 2.39	2.00	0	9					Chas. Sprigg.
Ozark.	Franklin.	377	20	80.2	- 2.1	104	2	52	26	36	3.70	+ 0.09	0.98	0	9	16	13	2	e.	R. M. Adams.
Pine Bluff.	Jefferson.	215	23	79.4	- 3.0	100	3	57	25	30	3.55	+ 0.01	1.00	0	14					J. M. Hudson.
Pocahontas.	Randolph.		19	78.2	- 1.2	103	4	55	26	32	9.48	+ 4.97	5.20	0	9	12	12	7		Benedictine Sisters.
Pond.	Benton.	1,250	14	76.6	0.0	101	3	47	25	32	7.04	+ 1.98	2.43	0	8	2	21	8	sw.	A. F. Stevens.
Portland.	Ashley.	122	2	79.4		98	2	60		27	8.75		5.25	0	16					L. W. Gregory.
Prescott.	Nevada.	327	23	79.6	- 2.3	103	4	55	26	35	3.50	+ 0.62	0.62	0	13					A. M. Ellsworth.
Rogers.	Benton.	1,385	20	76.2	- 0.7	101	5	50	25	32	4.16	- 0.43	1.71	0	11	11	11	9	s.	Carl A. Starck.
Springbank.	Miller.	182	4								3.74		2.04	0	14					G. Field.
Stuttgart.	Arkansas.	495	24	79.0	- 1.7	100	2	53	25	32	4.29	- 0.45	0.88	0	14	12	19	0	sw.	H. A. Buerkle.
Subiaco.	Logan.	1,050	14	78.2	- 1.6	105	4	54	26	31	5.98	+ 2.15	1.75	0	11	18	7	6	ne.	New Subiaco Abbey.
Swain.	Newton.	2,300		73.2		90	2	54	25	22	5.08		2.08	0	14	1	16	14	s.	George Paxton.
Texarkana.	Miller.	332	27	80.5	- 1.6	99	3	60	25	25	5.62	+ 2.53	1.66	0	12					D. E. Moore.
Warren.	Bradley.	304	16	79.4	- 2.5	100	2	56	27	30	3.22	- 0.59	0.65	0	10					W. J. Savage.
Whitecliffs.	Little River.	206	7								4.07		1.65	0	10					John E. Payton.
Wiggs.	Garland.		18																	S. D. Jester.
Wynne.	Cross.	250	3	77.8		100	4	54	25	31	3.05		0.80	0	12					John Seals.
Mississippi.																				
Anguilla.	Sharkey.	107	3	78.7		96	1	57	26	27	6.01		1.02	0	12	6	7	18	sw.	E. W. Cook.
Austin.	Tunica.	200	15	78.7	- 1.6	102	4	55	25	34	3.81	- 0.35	1.41	0	9	15	5	11	s.	H. J. Irvine.
Batesville.	Panola.	230	24	78.0	- 2.2	97	2	52	25	33	3.36	- 0.79	1.10	0	15	15	1	15	w.	J. M. Cox.
Big Creek																				

TABLE 1.—Climatological data for July, 1911. District No. 7—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.					Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
Mississippi—Contd.																					
Greenville	Washington	126	24	79.9	-1.9	98	†2	58	26	28	4.15	-0.16	1.38	0	17	10	3	18	se.	F. L. Harbison.	
Greenwood	Leflore	140	11	79.0	-1.7	100	2	51	26	37	1.63	-3.91	0.66	0	13	10	10	11	sw.	J. H. Stephen.	
Grenada	Grenada	124	2								3.23		0.75	0	9	18	8	5	se.	Tallahatchie Drainage Com.	
Hernando	De Soto	391	23	78.8	-1.4	99	3†	58	25†	30	4.54		1.83	0	10	14	7	10	ne.	W. F. Wood.	
Hickory Flat	Benton	435	2								8.10		3.35	0	15	7	22	2	s.	Tallahatchie Drainage Com.	
Holly Springs	Marshall	600	24	77.5	-2.8	98	3	58	25†	27	5.07	+0.76	1.30	0	13	10	8	13	se.	L. B. Mosby.	
Kosciusko	Attala	430	21	78.3	-1.4	97	2†	56	26	29	6.07	+1.26	1.98	0	13	14	9	8	se.	E. L. Lucas.	
Lake Cormorant	De Soto	206	2								2.81		1.50	0	10					Tallahatchie Drainage Com.	
Lula	Coahoma	182	2								6.21		1.89	0	10	18	5	8	Do.	Do.	
Malone	Marshall		2								7.04		1.61	0	16				Do.	Do.	
Marks	Quitman	163	2								2.69		1.03	0	11				Do.	Do.	
Natchez	Adams	206	23	78.0	-3.0	94	1†	62	26†	27	15.50	+10.30	4.68	0	15	7	0	24	se.	F. L. Garrity.	
New Albany	Union	398	2								4.98		1.05	0	11	8	20	3	s.	Tallahatchie Drainage Com.	
Pontotoc	Pontotoc	475	22	76.6	-2.3	95	3	57	25	24	6.38	+1.52	1.50	0	12	5	23	3	se.	Dr. C. W. Bolton.	
Port Gibson	Claiborne	116	23	78.8	-2.3	93	1†	58	26†	30	8.50	+3.96	2.20	0	15	5	4	22	sw.	H. H. Crisler.	
Rosedale	Bolivar	143	3	79.2				102	2	57	25	29	4.15	1.72	0	8	8	3	26	sw.	T. J. Murray.
Senatobia	Tate	284	2								4.81		1.28	0	16	21	0	10	s.	Tallahatchie Drainage Com.	
Shochoe	Madison	8	77.5			99	3	55	26†	33	5.12	+0.78	1.17	0	10	8	15	8	sw.	J. C. Pitchford.	
Suffolk	Franklin	10	78.4	-1.9	93	2†	60	26†	28	12.76	+5.63	2.55	0	19	9	12	10	sw.	Prof. George H. Kent.		
Swan Lake	Tallahatchie	148	6								1.75		0.45	0	7				Do.	B. F. Saunders.	
Tchula	Holmes	130	6	79.2		99	3	56	26	32	3.90		0.80	0	9	3	23	5	w.	Dr. M. P. Winkler.	
Uida	Hinds	287	7	78.4		93	1†	57	27	30	5.28		2.35	0	13	6	7	18	se.	Dr. J. B. Dudley.	
Vicksburg	Warren	247	40	78.4	-2.0	92	2	64	18	22	6.22	+1.80	1.27	0	15	1	13	17	se.	U. S. Weather Bureau.	
Water Valley	Yalobusha	300	22	77.9	-2.3	98	2†	56	25†	29	5.15	+0.77	1.30	0	12	13	10	8	s.	Miss Loula Erikson.	
Woodville	Wilkinson	560	18	78.0	-3.4	91	1†				13.97	+6.49	4.05	0	16	6	20	5	se.	James E. Lee.	
Yazoo City	Yazoo	116	17	79.5	-2.5	98	12†	56	26	30	6.64	+2.08	1.29	0	12	10	10	11	se.	W. H. Courts.	
Louisiana.																					
Abbeville	Vermilion	18	23	80.2	-1.4	93	3†	66	28	26	12.26	+3.68	2.92	0	21	6	13	12	se.	C. J. Edwards.	
Alexandria	Rapides	77	23	79.4	-0.6	95	21	61	26†	29	8.95	+3.09	1.73	0	13	7	3	21	s.	Nellie Graham.	
Amite	Tangipahoa	130	23	79.1	-2.2	94	2†	62	26†	29	10.34	+2.10	2.00	0	13	5	25	1	s.	Lulu M. Wentz.	
Avoca Island	St. Mary		60	80.5	-0.9	95	24	65	26†	26	15.92	+9.50	3.50	0	16	14	5	12	se.	J. N. Pharr & Sons (Ltd.).	
Baton Rouge	East Baton Rouge	2	11	79.4	-1.5	93	2†	65	29	25	10.45	+3.82	2.70	0	14	6	12	13	w.	Elmo M. Bott.	
Burnside	Ascension	1	23	82.0	-0.5	93	2	69	4	17	8.13	+0.87	3.00	0	10	10	13	8	se.	C. S. McFarland.	
Burrwood	Plaquemines		1	81.0		95	3	67	28	25	13.45		3.32	0	18	8	15	8	se.	Graham Myers.	
Cades	St. Martin		180	79.8	-1.5	98	4	54	27	33	3.45	-1.02	0.87	0	14	5	19	7	s.	C. E. Smedes.	
Calhoun	Ouachita	6	18	80.5		89	1†	70	4†	18	15.72	+8.02	6.00	0	13	7	13	11	se.	N. Louisiana Exper. Sta.	
Cameron	Cameron	7		80.4		95	24	66	28	22				0	15	6	6	19	s.	State biological station.	
Carrollton	Rapides	67	23	80.4	-1.2	96	1†	62	26†	29	13.53	+8.17	2.55	0	15	6	6	19	s.	Loyola College.	
Cheneyville	Rapides	1	79.9			93	1†	63	25	24	9.91		2.20	0	15	8	15	8	sw.	Walter I. Tanner.	
Cinclare	West Baton Rouge	113	23	77.6	-3.2	92	31	63	25	26	10.99	+3.96	1.87	0	21	4	7	20	s.	Cinclare Cent. Factory.	
Clinton	East Feliciana	65	10	80.2	-1.9	99	2	55	26	34	4.40		0.95	0	11	4	8	19	s.	John A. White.	
Collinston	Morehouse	39	19	79.7	-1.9	95	24	63	27†	29	8.81	+1.34	1.59	0	17	8	11	12	s.	John B. Reilly.	
Covington	St. Tammany	2	80.1			98	3	59	27	30	9.22		2.20	0	12	2	18	11	w.	Lucille Champagne.	
Dodson	Winn	33	23	80.8	-0.4	97	4	68	19	26	14.71	+8.94	2.85	0	12	16	1	14	s.	J. P. Lucas.	
Donaldsonville	Ascension										9.10		1.80	0	18	5	8	18		John F. Park.	
Dutchtown	do.										3.22		0.15	0	15	6	12	13	s.	Picard & Geismar (Ltd.).	
Farmerville	Union	177	23	78.2	-2.9	94	1†	58	26	28	7.74	+3.01	3.22	0	15	6	12	13	s.	W. P. Chandler.	
Ferriday	Concordia	4	79.0			92	1†	58	27	27	7.15		2.85	0	11	20	0	11	s.	R. Z. Slater.	
Franklin	St. Marys	10	19	81.0	-1.1	98	12	67	28	27	14.33	+4.89	2.34	0	19	6	11	14	s.	J. M. Bonney.	
Grand Cane	De Soto	302	17	77.5	-3.8	100	3	54	26	35	8.01	+5.42	2.00	0	18	2	13	16	s.	G. Foster Provost.	
Grand Coteau	St. Landry	93	23	80.4	-0.9	96	3	64	26	27	11.29	+4.81	6.27	0	11	9	19	3	s.	St. Charles College.	
Hammond	Tangipahoa	44	19	79.4	-2.0	95	1†	62	28	32	7.37	+1.00	3.65	0	9	17	11	3	se.	C. C. Carr.	
Houma	Terrebonne	23	77.5	-4.0	93	2†	60	27	32	11.30	+2.67	1.90	0	16	13	0	18	w.	H. M. Foote.		
Jena	Catahoula			80.0		98	3	60	26	30	13.84		2.42	0	15	0	25	5	s.	I. A. Wilbanks.	
Jennings	Calcasieu	30	14	79.1	-2.4	95	10	67	26	23	13.03	+7.20	3.48	0	19	4	17	10	se.	J. F. Buch.	
Lafayette	Lafayette	36	23	79.4	-1.8	92	3†	66	26	22	11.09	+3.95	2.30	0	18	3	12	16	e.	J. J. Davidson.	
Lake Charles	Calcasieu	22	23	79.8	-1.5	98	1	64	27	27	7.40	+0.76	2.00	0	11	14	0	17	s.	George Boudreaux.	
Lakeside	Cameron	9		80.2	-1.8	97	3	68	18	25	7.38		2.52	0	13	19	5	7	s.	L. J. Nunnemacher.	
La Rose (near)	La Fourche			79.0		95	2	68	8†	27	11.46		2.18	0	18	10	13	8	w.	Louisiana Delta Farms Co.	
Lawrence	Plaquemines	6	20	81.5	-1.2	99	2	68	27	27	5.63	-1.59	1.91	0	15	9	13	9	s.	H. C. Warmoth.	
Leesville	do.													0	15	6	9	16	s.	C. M. McFarland.	
Liberty Hill	Bienville	23	81.7	-0.9	101	1†	57	26†	31	5.25	0.00	1.20	0	15	6	9	16	s.	E. A. Crawford.		
Logansport	De Soto	192	7								6.64		1.72	0	9	13	4	14	s.	Bettie M. Dennis.	
Melville	St. Landry	45	23	79.6	-2.0	95	30	61	26†	30	9.56	+3.64	3.30	0	17	9	5	17	se.	Charles B. McNeill.	
Minden	Webster	194	23	79.8	-2.5	102	3	58	26†	31	6.58	+2.43	1.62	0	17	6	11	14	s.	Ethel Fort.	
Monroe	Ouachita	82	23	80.6	-1.6	98	1	60	27	30	3.73	-1.23	1.43	0	13	13	2	16	n.	L. L. Smith.	
Morgan City	St. Marys	14	5								13.64		3.11	0	17	6	10	15	se.	Virgil E. Kinsey.	
Newellton	Tensas	4	80.0			96	1†	60	26	26	14.87		2.74	0	12	4	22	5		John D. Fultz.	
New Iberia	Iberia	15	23	80.7	-0.7	92	24	69	26†	19	12.84	+5.51	3.05	0	18	3	19	9	se.	Mrs. John A. Gebert.	
New Orleans (1)	Orleans	51	40	80.2	-1.1	92	24	70	18	17	8.40	+1.93	2.71	0	14	0	16	15	se.	U. S. Weather Bureau.	
New Orleans (2)	do.	18	23	81.0	-1.3	96	30	65	27	27	4.70	+2.02	1.35	0	15	0	9	22	s.	Sugar experiment station.	
Opelousas	St. Landry	83	19	81.0	-0.6	98	3	61	6	32	11.79	+5.58	3.67	0	11	12	5	14	s.	Andrew Moresi.	
Paradis	St. Charles										8.34		1.52	0	10					Louisiana Meadows Co.	
Pearl River	St. Tammany	29	5								4.36		1.50	0	11	16	5	10	e.	George F. Bancks.	
Plain Dealing	Bossier	268	19	81.3	-0.3	102	3†	56	26	32	4.44	-0.44	2.10	0	10	6	16	9	sw.	Leon Sanders.	
Rayne	Acadia	44	19	80.3	-1.9	95	3	66	26†	28	9.13	+2.15	3.10	0	15						

TABLE 2.—Daily precipitation for July, 1911. District No. 7, Lower Mississippi Valley.

Stations.	Watershed.	Day of month.																																Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Colorado.																																		
Blaine.	Cimarron.		.37	.10		.18	.37									.32			T.														2.34	
Buena Vista.	Arkansas.	.30	.10	.32	.03	.60		.10				.06	.02	.10	.12	.07	.15			.10	.03		.15	.06	.13								2.44	
Cathan.	Big Sandy.	T.	.40	.34	T.		.73	T.	.31			T.				.02	.25	.03	T.	.20	.14							.10	.22	.07	T.	2.81		
Colorado Springs.	Arkansas.	T.	.32	.25	.20		T.	.05	.01	.16		T.	T.		.20		.04	.05		.28	.03	T.	T.				.16	.11	.01	T.	T.	1.87		
Cripple Creek.	Fountain.	.16	.33	T.	T.	.10	.01	.05	T.		T.				T.	T.	.64	T.	.39	.10		.32	T.	T.		.01	.05	T.	.01		T.	T.	2.17	
Cuchara Camps.	Oil Creek.															.03	.51	.62	.06	.82					.11	.12			T.	T.			6.33	
Ea Is.	Cuchara.	.30	.61	.09		.06	.75	.16																										
Fairview.	Big Sandy.		.60	.02		.27					.31	.37	.19	.05	.81		.50	.33								.41	.07						4.56	
Fremont Experiment Station.	St. Charles.		.60	.02		.27					.31	.37	.19	.05	.81		.50	.33								.41	.07						4.56	
	Fountain.	.28	.61	.02	T.	.62	.04	.32	T.		.10		T.	.19		.25	.42		.09	.22		.81		.23	.02	.26	.21	.04	.08	.01			5.42	
Garfield.	L. Arkansas.	.08	1.12	.19	.09	.04	.44	T.	.05			.06		.19	.10	.13	.08	.13	.35	.36	T.	.09	.38	.03	T.	.44	.02	.15	.01	T.	.10		4.63	
Hamp.	Big Sandy.		.02		.17		.07		.55				.20			.35		.35	.70	.05		.1.20									T.	T.	4.35	
Hermite Lake.	Grape Creek.	1.40	.67	.19	.12		.40					.35		.30		.37	.89	.30	.42	.05	.18	.11	.54	.50	.08	.14	.07	.11	.10	.10			7.39	
Hochne (near).	Purgatoire.	.10	.07		.18	.10	.11	.33	.05					.70	.10		.05	.32	.20	.22	.45		T.	.12				.10	T.	T.			3.20	
Holly.	Arkansas.			.18		.02																											1.52	
La Junta.	do.																																	
Lake Moraine.	Fountain.	.04	1.04	.12	.14	.06	.45	.35	.07		T.	.09	.25	.30	.03	.07	.08	.18	.80	.28	.02	.13	.07	1.07	.11	.63	.28	.05	.07	.25			7.03	
Lamar.	Arkansas.																																	
Las Animas.	do.	.42	.18	.48		T.	1.10															T.											1.18	
La Veta Pass.	Cuchara.		.91			.18	.09							.18	.30	.09	.11	.93	.59	.74	.15												2.73	
Lea Villa.	Arkansas.	.02	.75	.43	.06	.52	.16	.08	T.		T.	.06		.21	.03	T.	.03	.04	.14	.01	.02	.35	.27	.23		.06	.10	.02					5.58	
Limon (near).	Big Sandy.	T.	.05	.15	T.	T.	1.09	.08	T.		T.	.14	.21	.03	T.	T.	.34	.09	.41	.02	.35	.27	.23		.06	.10	.02						3.13	
Madrid.	Purgatoire.			.29	.46	.03		.01				.10	.15	.02	.39	.10	.11	.23	.04	.04	.56	.11	.09		.14	.15		.17	.15		.05	.02	2.77	
Marshall Pass.	Arkansas.	.10	1.10	.15	.12	.03	.30	.45				.25		.31	.23	.62	.20	.12	.40	.55	.40				.35	.30							5.98	
Monument.	Fountain.	.33	.38		.12		.02	1.00	.40		.29		.28		.31	.23	.62	.20	.12	.40	.55	.40				.35	.30						4.59	
North Lake.	Purgatoire.	.10	.53		.10		.10	1.00	.05		.03		.20		.73	.70		.35	.12	.01	.20	.03			.31	.50		.15	.05	.16	.25			6.68
Pueblo.	Arkansas.	T.	1.04	.54	T.	.15	.03		.06			T.	.12	.14	.02	T.		.04	.01		.50				.15	.05		.01					T.	2.81
Rocky Ford (near).	do.		.22		.35	.14						.26				.17				.37													1.51	
St. Elmo.	Chalk Creek.		.85	.40	.21	.05	.21	T.				.30		.20		.25	.05	.24		.36	.05	.47					.12	.02					4.30	
Salida II.	Arkansas.	.20	.60	.23	.48		.46	.15				.02	.14	T.	.27		.23	.07		.40	.10			.08				.25					3.68	
Santa Clara.	Huerfano.	T.	.08	.14	.45	.13	.63	.18	T.	.15		.08	.13	.15	T.	.23	.26	.02	.20	1.04	.87	.03	.12	.03	.08	.05		.41	T.				5.46	
Sheridan Lake.	Arkansas.	.42					1.43					.23																					2.05	
Stonewall.	Purgatoire.	.16	.20	.16	.80	.25	.70					.10	.32	.80	.78	.01	.29	.34	.25	.18	.40	.64		.38	.28		.30	.23	.22	.14			7.93	
Trinidad.	do.			.32									.04	.58	.12	.18				.27	.47						.03						2.47	
Victor.	Oil Creek.	1.10	.12			.43		.42					.07	.30		.73	.04	.22	.83	.28	.29	.48	T.	.12	.05	.06	.08	.40	.10	T.			6.12	
Vilas.	Cimarron.			.09							.70									.70													1.49	
Wayne.	Arkansas.		.34	.12	.11	.02	.60	.33	.13		T.		.45			.03		.30	T.		.44	.25						.05					3.17	
Westcliffe.	Grape Creek.	.25													.34	.05			.02	.56	.02		.10	.52		.06							1.92	
Winfield.	Clear Creek.	.01	.60	.18	.06	.02	.04	.02	T.			.01	.02	.13	.05	T.	.07	.45	.18	.13	.01	.23	.12			.01	.01	.01	.01	T.	.02	.02	2.41	
Woodman Sanatorium.	Fountain.	.45	.30	T.	.04	.08	.03	.40				.08		T.		T.	.32	.26	.68	.16		.03	.43				T.	.03	T.				3.29	
Wortman.	Arkansas.	.10	.40	.32	T.	.61	.33	.75	.43	.13				T.	T.	.30	.10	T.	T.	T.	.20	.10	.10	T.	T.	.10	.22	.13	.15	T.	.20	T.	4.87	
New Mexico.																																		
Abbott.	Canadian.	.02			.01		.23					.18	.44							.05	1.00	.30	.01	.06				.16	.10				2.56	
Albert.	do.		.26								.35	.05	.05	.02	.66	.26	.04	.28		.70	.15	.38											2.49	
Aurora.	do.	.32	.10	.15	.04	.24	.50	.11		.09		.05	.02	.66	.26	.04	.28		.03	.03	.18	.14	.02	.06	.66	.02		.11	.55	.73	.02		5.41	
Bell Ranch.	do.	.10		.02				.30		.03	.15	.08	.24	.13					.26	.81	.71							.19	.09				5.34	
Black Lake.	do.	.18	.22	.12	.06	.07	.30			.06		.06	.30	.09	.13		.27			.02	.04			.25	.50			.20	.02	.08			2.97	
Cabeza.	do.	.15				.05	.10					.95								.95	.10												2.30	
Campana.	do.					.15	.05	T.			.15	.12	T.	.04					.82	.35	.10												1.78	
Chacon.	do.	.24	.83	.35	.10	.30	.60				.30	.70	.13	.24		.10				.08				.91			.26	.14					5.28	
Cimarron (near).	do.	.50				.05	.94	.01			.03	.51	.24	.02	T.		.02	.26	T.	.90	.08		.71	.66	.37		.03	.03	.23				5.68	
Clayton.	do.			T.	T.			.44		1.13	1.10	1.10	.34		.16				.62	.18	.35	.06				.80	.03		.44				5.81	
Clovis.	Red.	.11	.01	.03		.19	T.	.25				.60	.85	T.	.16		.04		.62	.18	.35	.06											3.39	
Cuervo.	Canadian.	.11	.01	.03		.19	T.	.25				.60	.85	T.	.16		.04		.62	.18	.35	.06											1.79	
Dawson.	do.	.05	.17		.04		.23	.07				.97	.27	.30	.17		.04	T.	.23	.42	.35	.30	.75		.04		.25	.44					7.09	
Elizabethtown.	do.	* .49	.21		.36			.38				.61		.72	.12		.15		.07	.15		.21	.83	.18		.21	.43	.18					5.30	
Folsom.	Dry Cimarron.	.53	.01		T.	T.	.64	.15			.22	1.20	T.	1.20	.11				.98	.75	.18		.20	.15		T.	.26	.13					6.71	
Fort Union.																																		

[illegible]

MONTHLY WEATHER REVIEW.

JULY, 1911

TABLE 2.—Daily precipitation for July, 1911. District No. 7—Continued.

Stations.	Watershed.	Day of month.																															Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Oklahoma.																																			
Ada	Canadian		T.		T.	25				.07	.02			.23			.05	.05			1.27	4.16			33					.01	.10		35	6.89	
Alva	Arkansas						T.	T.				.38		1.30			T.	.35	.30		.34	T.					T.			.40			15	6.28	
Apache	Red.						.53	.11	T.	.09		.38	.09	1.05	.01			.30	.40		T.	1.09	2.90							.15			71	8.03	
Arapaho	Washita						.22	.22	.12					1.10				.11	.55	.34		1.42	1.90					.52			.06		58	7.14	
Ardmore	Red.					T.	.46	T.			.56				.15	.20			.20		.15	.42	.40		.35					.06	.10		10	6.13	
Arnett	Canadian						T.	T.		T.		T.	T.				1.90	1.00		1.50	.90	T.								.60			1.00	6.90	
Bartlesville	Arkansas								.12	.02		.05	.01	.27		.38					3.71									.01	.11		1.46	6.14	
Beaver	Canadian					T.					.02	T.		.04			.02	1.01			.52		.14							.70			1.18	2.63	
Blackburn	Arkansas					T.				.62			.12	.36							.07	2.03	.30		.03					T.			.47	4.40	
Cache	Red.						.88	1.10					2.00				.62	.32				.61	.20					.40			.70		30	8.66	
Calvin	Canadian										.12	.14		.07		T.				.14		.70	1.70							.06	.95	10	4.56		
Chandler	do.											1.12		T.			.47			.19		.70	.41	T.								.19	3.19		
Chattanooga	Red.					.50	.51		.26	.20			.27	.24			.50	.17			1.20	1.27								.27			18	5.57	
Chickasha	Washita		T.			.32	.15	.48	.07				.40	.06			.25	.37			1.22	2.57							T.	T.			33	6.22	
Cloud Chief	do.					.48	.18	T.	.11				.55	.30			.36	.45			T.	1.76	1.75						.18				60	6.72	
Durant	Red.			.02		T.	.06	T.	.07	.03				.28	.26	T.	.17	.24				.33	.81							T.	1.25	T.		3.49	
Eldorado	do.													.02			.44	.30	.24		.03	1.08	.04							.24	.08		3.90		
El Reno	Cimarron												.09	1.63	.45		1.45		.95		1.46	.08	.42									10	9.30		
Enid	Red.					.53	T.	T.	1.40				.56	.12			.96			T.	3.33	.02	T.			T.				.53	.18		82	8.45	
Erick	Arkansas					T.			.09	3.30		T.		.35	.44	.86		.28	T.	.62		.08	.12							1.25	T.		48	10.65	
Fairland	do.					T.															1.33	.50	.77	12	T.				.28	.09	.04		09	3.66	
Fort Gibson	Red.					T.	.38	T.	.15	.11			.40	.44	.40		.67	1.94			1.25	.92								.28			05	6.59	
Frederick	Canadian			.12		T.			.13				.40				.04			T.		.77	.04	.18									28	3.65	
Goodwell	Cimarron									.10			.20	.20			2.00	.10				.80	2.50										04	6.34	
Guthrie	Canadian				.20	.48			.37			.53							.51		.43	.63											36	8.09	
Guymon	Red.					.60											1.34				.77	1.92								.63	.65		52	6.73	
Harrington	Canadian								.05			.47	.03	.53			1.55	.83			2.30					.70							23	6.59	
Hartshorne	Red.		.47			.61	.45	.62				.03	.45	.90			1.07				.47	.48				.98							26	5.90	
Heldton	Cimarron					.70	.10	.42			T.		.45	.90			.95	1.97			1.55	1.90											25	8.62	
Helena	do.											.15	1.70				1.20				1.32	.38											13	7.63	
Hennessey	Red.								.10	.15			.15	.75	.10		23	1.85			2.12	.30											80	8.02	
Hobart	Canadian		T.	T.	T.	1.10	2.18	.35		T.			.41							12	1.32	.38												10	4.21
Holdenville	do.								.10	.15			.15																					3.79	
Hooker	do.								.10	.15			.15																					3.47	
Hurley	do.								.10	.15			.15																					3.66	
Idabel	Red.								.10	.15			.15																					4.21	
Jefferson	Arkansas								.15																									15	4.55
Kenton	Cimarron		T.	.11		T.	.06	1.48		T.		.12	2.04	.58	T.	.92		.15			.31	.09	T.											2.42	
Kingfisher	do.								.02	2.85			.07	.18			1.13	.34			.01	1.24	.44											2.76	
McAlester	Canadian																.08			T.	1.03	.11	.06		1.24									3.69	
McComb	do.																																	4.58	
Mangum	Red.								.02	.14	.02	1.66					.05			.35														80	6.68
Marlow	Washita									.42	.10	.01		.09	1.03		.20				.71	1.85	.51											03	5.66
May	Canadian									.11	T.			.09			.08	1.00			1.70	1.00	.02	.02										13	5.03
Meeker	do.									.47			.10				.25	.50			1.40													2.87	
Muskogee	Arkansas									.06	.13						3.00				2.50	1.08	.40											05	7.22
Mutual	Canadian						.58										.92				2.21	1.81	1.65											6.81	
Neola	Washita		.01			T.			2.00	.68	.04	.06		.80	.16	.34		.21	.74	T.														52	8.00
Newkirk	Arkansas						.29			.43		.66	1.02	.12							1.25	.06	.05											4.85	
Norman	Canadian		T.	.08		.04		.07	.01	1.50	T.		.04	.05	.96		.10	.21			.77	.51												30	5.03
Oakwood	do.								.48		1.40			1.01			.09	.56	.29		14	.87	.04	T.										16	5.15
Okeene	Cimarron		.02			2.05	.72		.09	.02			.01	.65			1.15	.98			25	.27	.01											19	6.49
Oklahoma	Canadian						.38			.06	1.64	.35	.25	T.	T.		.02	.09	.53		.51	.28	T.											13	3.74
Oklmulgee	do.									.28	.03			T.	T.						3.19													40	4.54
Pauls Valley	Washita		T.	T.						.16	1.04			T.	T.						.81	3.76												39	6.35
Pawhuska	Arkansas		T.							.61	.05	T.	.06	.48	.20		.01	.02			.07	3.00	.15	.02	T.									1.89	6.69
Perry	do.					.42	.06	.19	.52		.07	1.20	.47		.20	.29	.20	.29			.35													14	6.37
Ravia	Washita									.12			.02																					1.68	
Sac and Fox Agency	Canadian									.15							.40				.95													1.80	
Shawnee	do.			.14	T.		.04			.15	.07	.31	T.	.07	T.		.28				1.57	.15	.13											05	3.29
Snyder	Red.									.28		.28	T.				.11	.74			.48	1.38												2.90	
Stillwater	Cimarron					.12				.04	1.10		.50	.64	.04		.22				1.51	.13	T.											29	4.53
Tulsa	Arkansas									.02	.14	.06	.05	.03							2.30	.05	1.07		.01									10	3.85
Vinita	do.		.20							.10	2.50						.55				3.20													64	8.71
Wagoner	do.																																	33	7.66
Waukomis	Cimarron		T.	.09		.01	.32	.20	T.	.12	T.		.03	.72			1.40</																		

TABLE 2.—Daily precipitation for July, 1911. District No. 7—Continued.

Stations.	Watershed.	Day of month.																															Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Kentucky.																																			
Blandville	Mississippi			.25				.03	T.		.13						.34				1.39	.07		.02						.88		3.11			
Lynnville	do.																																		
Tennessee.																																			
Arlington	Mississippi				1.27	.75	.37			T.	.35	.05	.25		.04	.35		.40				2.40	.68		.05						.12	.22	7.30		
Bolivar	do.				1.02	.54	T.				.38	.08	.34		.19	T.						2.30	.05	T.						.15	T.	5.12			
Brownsville	do.				2.25								.02		.35						T.	.98	.74							.15	T.	4.49			
Covington	do.				1.10												.07					.63	T.							.10	.15	2.03			
Dyersburg	do.				.60									.35	T.			2.00				1.40	.10							.30	.55	T.	5.30		
Jackson	do.				1.04			.10					.18								.36	.65	T.							.11	.36	.17	2.97		
Kenton	do.								T.	T.		.02				1.06					.36	.84	.01	T.	.03					1.15	.67	.16	4.30		
Memphis	do.				.12	.59	.05		.18		.01	T.	.30		T.	T.					1.01	.41	.45	.01	.20					T.	.23	.41	3.77		
Milan	do.				.20						T.	T.			.26			1.25				.69	T.		.03					T.	.11	.69	3.22		
Trenton	do.										T.	T.					1.18					.37								.21	.33	.31	2.40		
Union City	do.				T.						.37					.29					.10	.20		.02						.70		.01	1.69		
Arkansas.																																			
Alicia	White				.15						1.20		.20			.25					2.05									.40		4.25			
Amity	Ouachita																																		
Arkadelphia (near)	do.				T.			T.	.24				T.		.21	.07		2.09		.09	T.		1.28		.25					.21	.44	.20	4.78		
Arkansas City	Mississippi				.14	.30	.06	.20					.36	.16		.40					1.10	.12	.45	.25						.26			3.70		
Batesville	White												.36	.16		.40					1.62	.66	1.24	.06						.02			.04	7.78	
Bee Branch	Arkansas				.60			.10	.45				T.	.10							.85	.10								1.45	.90	.20	5.45		
Benton	Ouachita																																		
Bentonville	Arkansas								T.	.11	.76			1.03	.50	.52	.09			1.80	.60	.16	.02	T.					T.	.65	.22	T.	.98	7.44	
Bergman	White				T.			.09	.07		.17	.03		.20	.35	T.					.92	.16								.40	1.75	.27	4.34		
Black Rock	do.								.07				1.40	1.38								.85									.54		4.24		
Brinkley	do.				.32	.72		.82	.78									.08				.80	1.88		.21						.54	.23	6.38		
Calico Rock	do.					.40		T.					.16					.60	1.10			.20	.40	T.		.04				.03	1.30	T.	4.23		
Camden	Ouachita					.02			.12						.63	.18					.11		.40	.02	.15	.13					.17	.05	2.42		
Centerpoint	Red		T.		.14	.80		.12	.28	.12		T.	T.	.10	T.	.20	.61				2.00	.10								.42	T.	.58			
Clarendon	White		.07		.07		.12	.04	.02	.62	.55			T.		.34	.02	T.	1.05			.80	.96	.58	.06						.12	.48	.11	7.01	
Conway	Arkansas				.03	T.	.11	.06				.70			.83	.42					.09	.08	.40							1.45	.02	.20	4.51		
Corning	White						.22	.29	T.		.03	3.15			.06	.67					.11	.19								1.16	.14	.09	6.11		
Dardanelle	Arkansas				.08							.04	.09		.03		.04	.22				.72	1.00	.35									2.92		
Dodd City	White				.40							.34									2.08	.74								*	3.22	.30	7.08		
Dutton	do.																																		
Eldorado	Ouachita					.75	T.	.02	.06	.22	T.	T.	T.	.58	1.60	.05	T.	.22	.74	T.		.15	.09	T.	.48						.02	.18	.04	5.06	
England	Arkansas		T.		.12	T.	.45	.62	T.						.52		T.	.25				.50	.31	.24	.28						.47	1.12	.92	5.94	
Eureka Springs	White		.10								.20					.86					1.15	.23									.42	.22	.13	5.06	
Fayetteville	do.		.15		.58	.15		.02		.14				.44							2.15	.03												4.14	
Fordyce	Ouachita							.27	.42						.75	.05	.72				.29	.14	.46		.48						.10	.46		4.14	
Fort Smith	Arkansas							.24	T.				.33	.02	.06	.47				.07	2.14	.65	.01	.06						.32	.10	.42	.29	5.38	
Fulton	Red							.40	T.	.27					.19	.42					.10													8.23	
Hardy	White				.15	T.	.02	T.		.17	.07	1.17									T.	.03	.04								.02	.40	.06	3.28	
Helena	Mississippi		T.		.32	1.12	.04	.12	.10	.04	.12										.04	.03												3.78	
Hot Springs	Ouachita							.20	.10		1.70				1.30							1.00										.50	.40	6.20	
Huttig	do.				.04		.26	.42	.16	.04		.08	.12	.01	.68	.19	.02	.30	.83	.15		.02												1.93	
Jonesboro	White				.41			.35			1.30				1.80						1.00	.10	.50								.26	.06		5.88	
Junction	Ouachita					.67		.40	.35			.51	.82	1.50						2.24													8.59		
Lake Farm	Arkansas				.11	.31	.80	.71						.11	.41	.72	.50					.50									.20	.60	4.97		
Lewisville	Red		.19		.45	T.	.05	1.00	.41			.05		.45	.57	.12						.35	.05		.45						.06	.35	.07	4.44	
Little Rock	Arkansas				.02		.02	1.28			.06			.45								.04										.06	.35	.07	3.24
Lutherville	do.				.31			.43		.05	.21	.01	.30								.30	.12									.10	.26	.06	3.48	
Malvern	Ouachita								.30						.60	.21	.10	.27				.10	.38	T.	.71									4.50	
Mammoth Spring	White										.18	.34									1.32	.98		.03							.06	.61	.06	4.50	
Marked Tree	St. Francis				.31	.21		T.			1.01										2.60	.15	.07											4.50	
Mena	Ouachita				.33							.18										2.04												5.77	
Newport	White							.30	.55					.20		.11					1.85	2.00												5.50	
Ozark	Arkansas				T.							.13		.41							.28	.48	.12											9.48	
Pine Bluff	do.					.06	.12		.26	.80					.65	.35	.07	.32																7.04	
Pocahontas	White						.11			1.70	3.50	.80										1.64	.92											8.75	
Pond	Arkansas								T.		.86			.20																					

TABLE 2.—Daily precipitation for July, 1911. District No. 7—Continued.

Stations.	Watershed.	Day of month.																															Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Mississippi—Con.																																			
Kosciusko ||	Big Black					.18	.25	.44	.01					.01	.83	.33	.15						.03	1.98	1.23		.03					.02	.19	.06	6.07
Lake Cormorant	Yazoo					.37	.12	.03				.07					.02						1.50	.44								.19	.06	2.81	
Lula	do			.40		.37	.11		.21						.72		.35						1.44	.47								.25	1.89	6.21	
Malone	do					.35	.12	.05		.05	.76	.62	.57			.11	.13				.13		1.61	.73	.21	.60						.09	.82	7.04	
Marks	do					.03	.04	.20	.12						.12								.40	.15		.30						.20	.03	2.69	
Natchez ||	Mississippi	1.33	.14		1.75	2.10	4.08	.47	.27	.58		.75			.08		.83	1.16			.75	.10											.51	15.50	
New Albany	Yazoo				.07					.07	.40	.38				.65	.27						.72	.48		.83						.06	1.05	4.08	
Pontotoc	do		.26	.35											1.00		.25	1.05			.20	.25	1.50	.35	.50						.40	.27	6.38		
Port Gibson ||	Mississippi	.14		.40	.39	2.20	.67	.10	.02						.47		.25	.12	.49			.64	2.09			.30						.22		8.50	
Rosedale ||	Yazoo						.30	.20							1.72		.85						.45	.55	.05							.03		4.15	
Senatobia	do			.22	.85	.13	.03	.05	.45	.30	.04					.16	.25					.03	1.28	.05	.38							.49	.10	4.81	
Shoccoe	Big Black		.43		.08	.19	.75							.43	.55	.09	.80															.63	.17	5.12	
Suffolk	Mississippi	.38	1.15	.16	.28	1.24	1.33	2.55	.20					.57	.50	.57	.02	.44	.52	1.32	.65	.18										.10	.60	12.76	
Swan Lake ||	Yazoo							.45		.15						.15																.25	.25	1.75	
Tchula	do			.80					.35			.18	.39			.30	.60		.10													.70		3.90	
Utica	Mississippi		.45	.20			.18					.04	.55			.17		.19	.23		.22	.10										2.35	.10	5.28	
Vicksburg	do	.04		.02		.22	.52	.38	.38			.04	.03	.02	.97	1.25	.54			.51												1.27		6.22	
Water Valley	Yazoo			.98		.12	.32			.12	.25	.35	.20	.12	.08								.45			1.30							.78	5.15	
Woodville	Mississippi	.12		.35		1.32	3.10	4.05				1.75	.15	.18		.07	.60	.90	1.20	.04	.01											.09		13.97	
Yazoo City ||	Yazoo						.28	.52	.50						.12	1.29	.77	.10					1.25	.52	.02							.32		6.64	
Louisiana.																																			
Abbeville	Coast	.17		.07		.45	1.66	1.35	.80	.40	.02		.36	.87	.05	.08	.58	1.85	2.92	.31						.03	.05				.12	.10	.02	12.26	
Alexandria	Red		.50		.89		.45	1.73		.29				.20		1.50	.60	.73	.57	1.33	.10											.15		8.95	
Amite	Coast	.30		.25	1.10	1.50	1.60	.29	.85		.15				.35		.20	.60	1.24	2.00														10.34	
Avoca Island	do			.13		.06	.90	3.50	3.20	.70	.89		.75		.32	.11		.60	.31	3.30	1.10		.02										.13		15.92
Burnside	do	.25			.04	.67	1.60	.90	1.10		.01	.05	2.70		.27	.65	.38	1.58	.25															10.45	
Burwood	do				1.05	1.68	3.09	.90			.27		.26			.08	.54	.47	.53	.03														8.13	
Cadeau	do	.23		.52	1.11	.35	1.12	3.32	.42	1.49	.29	.64			.08	.54	.34	1.81	1.60	.27	.95													13.45	
Calhoun	Ouachita			.08		.13	.12	.60	.24					.08	.15	.09	.26		.60		.04													3.45	
Cameron	Coast	.58	1.12	.76	.11	6.09	4.02	.54						.67		.37	.32	.65		.15														15.72	
Carrollton	do																																		
Cheneyville	Red			1.35		1.13		2.23	1.59	.30	.15					.30	.15		1.35	.80	.95	2.55	.40	.05										35.53	
Cinclare	Coast			.22	.75	2.20	1.82	.17	.59		.37			.38	.26	.34	.74	.45	1.09	.15														38.91	
Clinton	do	.55	.04	.02	.26	.11	1.87	1.57	1.03	1.14			.08	.46	1.09	.05	.23	.13	1.16	1.34	.26	.03												48.10	
Collinston	Ouachita					.70	.54		.62				.30	.52	.19			.95	.07															37.40	
Covington	Coast	.87	.85	.02	.40	.74	.60	.27	.89		.67	.43			.30	.02	.11	1.59	.37	.45	.30	.23												8.81	
Dodson	Red					.85	.40	2.23	.55					.38		1.97	.10		1.27	.72														9.22	
Donaldsonville	Coast	.10				.85	2.40	1.50					2.30	.65	.30		.90	.30	2.00	2.85	.56													14.71	
Dutchtown	do	1.75		.20	.02	.84	.48	1.80	.17				.12	.09	.33	.01	.02	.53	.14	.06	1.18	.88												48.10	
Farmerville	Ouachita					.14	.50	.20					.58	.77	.35		.08	.32	.22	.14														7.74	
Ferriday	do					2.85	.39	1.85					.30			.08	.24	.30		.52	.25													7.15	
Franklin	Coast		.11		.42	1.07	2.30	1.01	.11	.55	.32	.03		1.56	1.18	.02	1.12	.95	.78	2.34	.15	.07												24.13	
Grand Cane	Red					.74	.01	.02	.01	.02			.02	.16			.12		.62	.27	.20													8.01	
Grand Coteau	Coast	.25				.52	1.50	1.30	.05				.20	.72	.16			.12		.62	.27	.20												11.29	
Hammond	do					.45	3.65	.50	.65					.27		.10			.85	.65	.25													7.37	
Houma	do	1.29		.10	.60	1.20	.90	.90	.20		.50		.70			.60	.80	1.90	.40	.30	.70													11.90	
Jena	Red	.96		.09	.45	.88	1.20	.89						2.25	.08	1.76	.80	.27	2.15															60.13	
Jennings	Coast		.65	.06	.11	.67	.69	3.48	1.09	.79	.10		.08	.02	.22	.55	.45	.38	1.03	1.16														24.03	
Lafayette	do		.52	.04	.11	.20	2.18	2.30	1.02	.20			.27	.47	.07	.90	.08	.79	.05	1.26		.04												11.09	
Lake Charles	do				.39			2.00	1.0	.70			.10	.60		1.50		.40		1.00	.60													7.40	
Lakeside	do					.45	2.52		1.57				.20		.05	.20	.10	.04	.06	1.29	.36													7.38	
La Rose (near)	do			1.44	.71	.92	.20	.98		.48	.10		.09	.25		.12	.48	.38	.84	1.53	2.18													11.46	
Lawrence	do			.11		1.91	.64	.12	.17	.10				.18			.07	.06	.24	.07	.75	.20	.65											5.63	
Leesville	Sabine																																		
Liberty Hill	Red					.25	.43	.10	.35	.35				.65	.05		.62	.1																	

TABLE 3.—Maximum and minimum temperatures at selected stations July, 1911. District No. 7, Lower Mississippi Valley.

Date.	Colorado.						New Mexico.				Texas.				Kansas.								Oklahoma.					
	Lamar.		Leadville.		Pueblo.		Albert.		Cimarron.		Amarillo.		Paris. §§		Dodge City.		Ellinwood.		Iola.		Liberal.		Wichita.		Ardmore. §§		Bartlesville.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	98	66	64	35	88	64	90	61	77	55	90	67	100	73	94	72	99	74	100	74	90	69	96	77	103	76	101	74
2....	95	62	59	39	77	61	88	62	77	56	87	65	101	73	93	69	100	72	103	76	96	67	96	75	102	71	104	74
3....	95	64	67	43	80	60	89	63	76	54	92	64	102	72	95	68	101	65	103	72	97	65	99	76	106	74	105	77
4....	98	67	70	38	90	60	92	62	81	55	93	66	101	74	98	70	104	72	105	74	98	64	101	78	108	76	109	75
5....	100	61	66	39	89	63	95	63	81	51	96	67	104	73	102	73	106	72	104	77	102	69	100	78	108	76	108	80
6....	89	64	64	42	77	60	99	64	74	57	94	69	95	72	92	71	95	72	99	68	94	69	93	74	102	72	101	72
7....	88	62	61	41	85	61	95	60	81	56	88	66	94	72	92	69	95	69	93	69	93	64	90	71	103	74	100	73
8....	97	65	64	37	90	60	91	60	84	50	93	66	83	70	94	71	98	71	93	71	97	69	91	71	91	72	97	73
9....	91	63	67	37	84	60	94	62	81	53	89	67	93	70	88	71	89	69	82	72	88	69	80	70	92	74	86	73
10....	99	63	74	38	93	63	92	62	84	55	85	66	96	71	94	66	95	68	94	72	96	66	90	69	100	71	94	73
11....	97	63	69	44	90	62	92	58	80	55	92	66	101	72	88	70	98	69	100	73	97	68	94	74	104	75	106	74
12....	93	64	71	42	86	66	93	61	82	59	83	66	96	74	87	65	91	68	90	74	86	65	82	71	95	77	86	72
13....	88	60	57	43	75	63	86	74	71	56	82	64	99	72	86	68	85	66	86	64	85	67	85	72	96	75	87	69
14....	83	63	72	41	80	60	76	64	71	56	79	64	94	72	80	63	93	57	92	67	89	62	91	69	92	74	92	70
15....	97	61	68	40	89	58	84	64	80	52	89	64	92	71	94	64	98	67	92	65	95	71	92	66	97	70	98	67
16....	92	59	70	38	88	58	81	65	74	57	84	64	93	72	92	60	93	57	87	63	92	59	89	61	95	71	89	67
17....	84	60	65	40	80	63	91	67	82	56	90	62	92	69	75	60	83	59	67	60	88	68	75	60	95	69	75	67
18....	97	63	66	42	89	58	94	61	82	51	85	62	90	69	82	60	88	54	85	58	91	61	86	59	91	65	92	62
19....	95	55	60	44	71	59	85	61	79	53	81	65	95	70	70	60	79	65	78	68	84	64	76	68	84	66	87	70
20....	87	64	71	38	80	63	86	63	76	56	83	65	96	74	79	67	84	67	82	70	80	65	82	70	95	74	85	70
21....	92	65	62	46	85	64	86	66	79	57	81	66	79	75	85	65	91	63	90	68	87	65	87	70	83	74	89	70
22....	98	68	58	42	93	62	82	64	84	57	84	65	88	72	84	68	89	66	89	67	90	68	85	71	92	73	93	72
23....	91	65	65	38	79	63	84	69	79	56	85	67	97	72	83	63	87	68	89	64	89	66	85	66	106	74	93	74
24....	80	58	65	41	70	59	85	67	63	51	69	58	82	73	76	55	79	51	78	57	81	54	76	58	78	68	75	59
25....	90	51	59	43	82	54	79	55	73	51	77	54	88	60	82	54	87	48	83	52	81	51	83	59	89	58	82	54
26....	100	52	66	39	87	57	90	63	81	50	83	60	90	60	83	65	89	62	87	57	89	54	86	64	93	60	92	60
27....	97	66	66	39	88	60	92	64	78	53	89	65	90	62	94	65	91	61	97	61	97	63	94	63	95	66	82	63
28....	92	67	66	39	84	64	89	63	78	56	91	65	85	62	88	66	91	68	84	64	90	64	83	72	93	73	77	60
29....	94	61	67	38	90	54	89	61	79	51	85	65	85	70	89	67	91	66	83	68	96	66	87	69	73	71	88	70
30....	105	70	65	38	91	67	96	63	81	49	87	63	90	68	88	68	92	67	87	69	92	64	88	70	94	67	88	67
31....	102	58	64	36	90	55	95	63	84	51	87	66	89	67	91	65	92	64	82	65	90	60	85	63	93	73	80	62
Mns..	93.7	62.3	65.4	40.0	84.5	60.7	89.0	63.5	78.5	53.9	80.2	64.5	93.2	70.2	88.0	65.7	91.9	65.1	88.7	67.1	91.2	64.4	87.4	68.8	95.4	71.3	91.6	69.1

Date.	Oklahoma.												Missouri.								Kentucky.		Tennessee.					
	Enid. §§		McAlester.		Mangum. §§		Muskogee.		Oklahoma.		Weatherford. §§		Woodward.		Caruthersville.		Ironton. §§		Lamar. §§		Olden.		Springfield.		Lynnville.		Jackson.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	104	74	102	75	98	72	104	75	99	75	101	74	97	73	94	68	96	61	100	73	94	69	93	74	.....	93	65
2....	105	69	103	78	97	72	105	74	97	73	101	76	97	70	96	67	98	63	102	74	96	67	95	73	.....	97	66
3....	106	72	104	75	101	72	105	75	99	77	104	76	100	68	97	69	100	64	106	75	94	71	98	76	.....	101	65
4....	107	74	104	76	103	70	106	86	101	77	106	73	102	74	99	73	101	66	104	76	96	71	96	74	.....	102	70
5....	108	80	107	75	108	70	107	75	103	76	106	77	105	75	92	69	100	71	105	76	96	71	98	73	.....	95	69
6....	107	76	104	73	107	74	103	73	99	70	104	75	100	74	88	69	90	67	96	73	.....	.....	88	68	.....	93	69
7....	95	69	102	72	94	72	97	72	92	70	91	69	94	68	89	69	93	63	94	69	87	64	88	68	.....	89	68
8....	93	69	93	71	94	70	96	72	89	71	91	69	94	70	90	72	90	66	96	71	89	71	89	69	.....	92	69
9....	88	73	95	69	92	72	91	71	78	68	89	71	94	72	92	69	94	70	85	72	91	67	87	68	.....	90	70
10....	95	71	101	75	94	71	96	73	88	72	93	71	93	65	97	70	91	72	89	70	89	73	84	69	.....	92	69
11....	102	73	104	80	101	70	101	73	96	75	101	73	102	73	90	73	94	71	97	68	94	68	94	73	.....	95	70
12....	88	70	102	75	103	70	99	77	86	72	92	72	87	68	99	73	96	64	89	72	91	64	86	69	.....	94	70
13....	85	68	101	72	84	72	98	72	87	71	83	71	88	70	94	74	91	68	91	70	88	66	88	71	.....	97	69
14....	91	67	96	71	92	70	98	70	92	70	90	69	93	65	95	72	95	61	92	71	89	64	87	71	.....	93	68
15....	96	70	100	70	93	70	98	72	92	73	94	70	97	63	94	70	96	53	93	66	91	65	91	68	.....	95	67
16....	89	65	97	70	96	70	90	63	88	69	87	57	92	68	81	69	88	66	90	65	85	68	86	66	.....	88	64
17....	80	69	98	66	96	66	89	67	88	65	87	65	84	62	84	59	84	48	74	59	83	57	81	62	.....	96	56
18....	88	60	95	69	82	66	89	67	84	62	82	60	83	61	88	66	89	53	87	62	84	61	83	61	.....	91	63
19....	86	65	93	70	92	66	87	69	89	68	85	64</																

TABLE 3.—Maximum and minimum temperatures at selected stations, July, 1911. District No. 7—Continued.

Date.	Tennessee.										Arkansas.										Mississippi.									
	Kenton.		Memphis.		Bentonville.		Corning.		Dardanelle. §§		El Dorado. §§		Fort Smith.		Little Rock.		Pine Bluff. §§		Texarkana. §§		Wynne. §§		Clarksdale. §§		Corinth. §§		Greenville. §§			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.....	95	68	94	75	96	69	94	70	99	71	97	72	99	75	95	76	97	71	97	75	98	70	96	71	96	70	96	71		
2.....	98	67	94	76	97	68	95	70	101	72	96	74	100	75	97	76	98	72	98	73	99	70	98	71	98	68	98	74		
3.....	99	71	97	78	98	71	97	70	101	70	97	74	100	76	97	76	100	74	99	75	99	72	98	73	98	71	98	75		
4.....	102	73	94	76	98	71	99	72	102	72	97	73	102	78	97	77	99	74	99	76	100	72	95	71	98	74	97	71		
5.....	93	69	88	73	100	70	98	72	98	71	92	73	101	76	86	73	87	77	97	75	89	73	89	73	90	70	90	74		
6.....	89	70	86	69	93	68	88	70	88	70	86	72	90	72	85	71	89	70	90	72	87	70	87	69	87	68	86	71		
7.....	91	67	86	71	89	67	87	68	89	71	86	72	90	73	82	72	87	70	87	72	85	70	81	72	86	70	87	72		
8.....	93	70	87	71	91	67	89	73	91	73	88	71	91	73	79	72	88	70	88	72	83	73	86	73	89	68	91	72		
9.....	92	71	86	70	90	69	90	69	94	69	90	70	94	71	87	71	87	69	92	70	86	69	90	68	88	70	93	68		
10.....	96	71	89	76	87	71	90	72	96	70	94	73	95	74	89	72	90	69	94	72	93	72	90	73	85	72	95	73		
11.....	91	72	82	75	96	71	80	70	93	73	95	72	100	76	89	75	94	74	95	75	87	75	90	71	90	70	94	74		
12.....	97	72	88	74	90	72	91	70	91	70	94	72	96	75	89	74	93	72	94	72	80	73	91	74	90	70	94	74		
13.....	99	70	90	74	92	69	91	72	94	72	94	72	94	73	89	72	90	71	90	71	92	72	91	73	94	69	90	72		
14.....	94	68	90	74	84	67	90	68	90	71	84	73	90	72	85	73	90	72	87	73	86	72	88	71	91	68	89	72		
15.....	96	67	92	74	90	63	91	66	95	66	87	72	93	71	89	73	90	70	90	72	90	72	86	72	93	70	92	73		
16.....	82	66	78	72	85	66	87	67	91	69	85	72	89	69	87	69	84	70	82	71	81	70	82	71	85	70	84	70		
17.....	85	59	85	66	87	63	83	60	90	63	85	67	87	70	84	66	85	66	86	69	85	60	86	69	84	66	89	70		
18.....	85	65	87	69	85	62	86	66	89	61	80	65	88	69	83	66	84	65	81	72	86	66	86	66	86	64	83	66		
19.....	89	68	84	68	88	64	85	64	94	65	90	63	93	69	86	70	89	68	92	70	90	63	87	64	87	62	91	67		
20.....	80	70	82	72	81	69	82	72	88	71	89	72	88	71	86	74	89	75	92	73	88	72	90	71	82	70	93	71		
21.....	86	69	82	73	84	70	84	73	81	71	79	72	86	72	82	72	83	74	79	75	85	73	87	77	82	70	85	76		
22.....	87	70	89	74	87	66	90	72	87	72	87	75	87	73	86	73	89	73	91	74	88	74	87	73	88	72	85	75		
23.....	87	71	85	74	86	71	89	73	93	75	91	74	92	74	89	74	91	73	92	72	90	73	86	74	88	71	89	74		
24.....	80	68	79	68	76	59	85	67	83	68	80	76	80	67	81	68	84	72	81	71	75	72	83	76	81	72	83	76		
25.....	81	53	78	62	79	51	80	54	83	55	83	59	83	58	81	62	85	57	82	60	82	54	83	57	81	56	85	61		
26.....	87	55	83	66	84	54	84	54	86	56	84	59	87	59	84	64	88	58	84	62	86	55	87	55	85	56	85	58		
27.....	89	58	85	67	80	57	85	57	84	57	84	57	83	61	83	65	86	59	86	62	86	57	88	57	86	56	87	59		
28.....	86	58	82	68	72	62	83	59	84	63	87	64	74	67	84	65	88	60	89	67	84	61	85	60	86	58	88	61		
29.....	78	65	77	71	77	67	79	67	85	67	87	67	80	72	77	69	80	72	91	70	80	69	88	65	88	65	89	65		
30.....	82	66	74	69	84	67	81	67	84	69	85	71	84	70	81	69	86	70	84	73	70	69	77	70	81	68	85	71		
31.....	84	67	82	70	77	67	81	67	80	70	90	70	82	70	83	69	89	70	91	71	85	67	80	68	76	70	88	70		
Mns.....	89.6*	66.9*	85.6	71.4	87.2	66.1	87.5	67.5	90.5	68.2	88.3	69.9	90.2	71.0	86.2	70.9	89.1	69.6	89.8	71.2	86.8	68.7	87.7	69.3	87.7	67.5	89.6	70.2		

Date.	Mississippi.										Louisiana.										Shreveport.									
	Kosciusko. §§		Natchez. §§		Vicksburg.		Alexandria. §§		Baton Rouge. §§		Covington. §§		Lafayette. §§		Lake Charles. §§		Monroe. §§		New Orleans.		Robeline. §§		Schriever. §§		Shreveport.					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
1.....	94	70	94	71	92	75	95	69	90	72	93	69	89	74	98	69	98	75	90	76	99	68	94	72	97	74				
2.....	97	72	93	70	92	75	94	70	94	72	93	70	90	73	94	71	97	73	91	74	95	70	95	73	98	76				
3.....	97	74	94	71	90	74	94	70	92	74	94	73	92	75	95	70	95	70	88	76	100	69	93	69	98	73				
4.....	93	68	93	73	92	71	95	70	94	72	91	69	89	73	92	68	97	74	89	74	94	76	89	71	96	76				
5.....	89	72	86	70	89	71	90	72	90	73	80	72	78	75	89	72	95	70	70	70	92	72	76	72	95	72				
6.....	82	70	75	70	77	71	80	70	88	70	76	71	80	72	80	68	89	78	72	72	85	72	76	71	90	72				
7.....	80	68	76	68	78	70	80	70	85	68	82	72	80	70	81	66	83	71	77	71	84	71	83	71	80	71				
8.....	89	67	87	70	87	70	84	70	89	69	90	69	83	70	85	69	86	71	88	71	90	71	88	68	85	71				
9.....	92	69	91	70	91	69	90	71	91	70	92	70	90	70	93	67	93	75	89	75	83	72	93	68	88	71				
10.....	93	70	92	70	92	73	93	72	92	72	91	71	91	72	95	70	94	76	89	75	95	69	92	69	93	70				
11.....	94	72	80	72	90	72	93	72	90	71	91	73	85	74	91	68	94	73	89	75	94	70	93	71	95	74				
12.....	84	72	91	71	87	72	93	72	87	73	90	75	85	73	88	69	93	75	86	73	94	71	91	71	93	72				
13.....	91	71	84	73	87	72	88	72	88	73	91	72	84	73	88	70	93	73	90	74	87	72	92	72	92	74				
14.....	85	71	86	72	81	72	89	71	90	73	92	72	88	73	90	68	82	76	87	75	91	71	93	70	84	72				
15.....	80	72	82	73	82	72	83	71	89	74	85	74	81	74	84	72	85	74	86	73	86	72	90	74	83	72				
16.....	85	69	85	70	80	72	83	69	97	71	89	71	85	73	88	69	86	71	84	73	88	72	85	71	85	71				
17.....	87	70	78	71	87	72	88	69	87	73	86	72	83	74	88	68	92	73	79	72	93	70	78	71	89	70				
18.....	82	64	75	72	76	64	75	70	75	70	77	70	75	73	85	68	81	72	86	70	86	67	86	69	77	67				
19.....	89	66	87	71	85	70	88	69	90	68	85	70	86	71	91	79	91	68	86	74	93	68	89	70	91	70				
20.....	90	70	90	71																										

CLIMATOLOGICAL DATA FOR JULY, 1911.

DISTRICT No. 8, TEXAS AND THE RIO GRANDE VALLEY.

BERNARD BUNNEMEYER, District Editor.

GENERAL SUMMARY.

The month was characterized by much cloudy weather, with frequent and generally well distributed rains, and by warm days and relatively cool nights. Precipitation occurred every day in the month in some portion of the district, but it was mostly in local showers which yielded unequal amounts in near-by localities. In general the monthly amounts were decidedly above the normal in the Colorado and New Mexico areas and in the greater portion of Texas, embracing the Trans-Pecos region and all that portion of the State lying north and east of the Colorado River. In the remaining portions of Texas from the Colorado southward to the Rio Grande and westward to the Rio Pecos there was a considerable deficiency, although a few scattered localities were favored with some splendid rains. However, the precipitation was inadequate to relieve the prolonged drought in southwestern Texas, and this section is practically the only one in the district that was badly in need of moisture at the close of the month. So far as New Mexico is concerned this is the wettest July on record since 1895. The relative humidity was high in the greater portion of the district, and the number of days with 0.01 inch or more of precipitation averaged 17 in Colorado, 11 in New Mexico, and 7 in Texas. There were but few severe local storms during the month, although thunderstorms occurred frequently, and several deaths by lightning were reported. Considerable damage was caused in New Mexico by wash-outs and by floods of the Rio Grande and Rio Pecos.

The greatest and least monthly amounts of precipitation in Colorado were 5.58 inches at La Veta Pass and 2.39 inches at Garnett; in New Mexico, 11.54 inches at Torrance and 1.36 inches at Agricultural College; and in Texas, 14.95 inches at Henderson and none at Cotulla and Dilley. These last named places are located in southwestern Texas, in Lasalle and Frio Counties, respectively, and appear to be nearly in the center of the droughty area. Excessive precipitation of 2.50 inches or more in 24 consecutive hours occurred at 4 stations in New Mexico and at 32 in Texas, the heaviest being 5.80 inches at Torrance, N. Mex., on the 9th, and the next heaviest, 5.35 inches at Liberty, Tex., on the 7th-8th.

TEMPERATURE.

The monthly mean temperature was 0.2° below the normal in Colorado and 2.4° below in New Mexico. In Texas it averaged about normal, although it was warmer than normal in the region of deficient precipitation and correspondingly colder in the remaining portions of the State. In New Mexico it was the coolest July since 1895, with the exception of July, 1906. There was not much

change in temperature from day to day, although cool weather occurred on several days. The lowest temperatures were recorded in the greater portion of the district from the 24th to 26th. The daily range of temperature varied from about 8° on the upper Texas coast to about 30° in the northwestern portion of that State. The range was relatively small in Colorado and New Mexico due to unusual cloudiness.

The highest and lowest temperatures reported were: In Colorado, 96° at Saguache on the 13th and 37° at Wagon Wheel Gap Experiment Station on the 31st; in New Mexico, 102° at Plainview on the 30th and 32° at Red River Canyon on the 30th; and in Texas, 111° at Ballinger on the 23d and 52° at Plainview on the 25th.

PRECIPITATION.

Unusually heavy rains occurred over the Rio Grande watershed from the source of the stream to its junction with the Rio Pecos, but south of that junction there was a marked deficiency amounting to nearly 1.50 inches. The average for the entire drainage area was 3.76 inches, which is over 300 per cent more than reported for June. The greatest monthly precipitation was 8.31 inches at Rosedale, N. Mex., and the least 0.08 inch at Eagle Pass, Tex.

The precipitation over the Rio Pecos watershed was even heavier than over that of the Rio Grande, but in this case also there was a conspicuous deficiency over the lower portion south of New Mexico. The average for the entire drainage area was 4.76 inches, which is about 400 per cent more than reported for June. The greatest monthly amount was 11.54 inches at Torrance, N. Mex., and the least, 0.76 inch at Grand Falls, Tex.

The Texas watersheds west of the Colorado River showed a decided shortage of precipitation, while those east of that stream received a marked excess. Over the Colorado drainage area the precipitation was very nearly normal. The heaviest precipitation occurred over the Neches drainage area, with monthly amounts in several localities exceeding 11 inches. One station, Henderson, in this watershed, reported 14.95 inches, which was the heaviest in the district. The least precipitation occurred over the Nueces drainage area, and two stations in this watershed, Cotulla and Dilley, received no moisture during the month. The following are the average monthly amounts in inches for the various watersheds: Nueces, 0.64; San Antonio, 1.33; Guadalupe, 1.58; Lavaca, 1.52; Colorado, 2.61; Brazos, 4.69; Trinity, 4.96; Neches, 8.32; Sabine, 5.22; and coastal plains, 3.34. While these amounts for the watersheds as a whole average about 2.50 inches more than those reported for June, the Nueces watershed and adjoining sections were badly in need of moisture at the close of the month.

RIVER CONDITIONS.

The Rio Grande and the Rio Pecos were at flood stage during the month, and special mention of the floods of these streams has been made elsewhere in this summary.

Of the Texas streams the Nueces, San Antonio, and Guadalupe were at low water mark during the month. The Colorado, Brazos, Trinity, Neches, and Sabine had a good flow of water after the first decade, and, although they were falling at the close of the month, they carried a much larger volume of water than at the beginning of the month. Flood stage was not attained, but the Brazos was nearly bank full on the 18th in the vicinity of Waco. There was an abundance of water in the lower Colorado for the rice that had not reached the stage of maturity and for all other irrigating purposes.

FLOODS OF THE RIO GRANDE AND OF THE RIO PECOS.

By F. H. BRANDENBURG, District Forecaster.

Rio Grande.—The rainfall on the watershed of the Rio Grande in New Mexico, in common with its upper reaches in south-central Colorado, was exceptionally heavy during July. In San Luis Valley, Colorado, rain fell on an average of 17 days, and in amount has rarely been exceeded in July, while near the southern border of Colorado it was the greatest of record. In New Mexico, especially the northern part, the persistence of rain was fully as marked. At Santa Fe the fall was the greatest for July in 35 years, and at El Paso, Tex., the greatest in 30 years. The heavy rainfall was reflected in the Rio Grande and flood stage was maintained in the greater part of its course during the entire month. Naturally the fluctuations in the height of the water were more pronounced than during floods resulting from the melting of snow, the usual cause. In the lower reaches of the river, notably at El Paso, six well-defined crests occurred: On the 7th and 12th, when 17.3 feet was noted; on the 18th, 16.8 feet; on the 21st, the highest stage, 18 feet, occurred. On the 24th and 28th stages of 17 and 16.9 feet, respectively, were noted. The previous highest reading of the El Paso gage is 17.3 feet. Below El Paso the river was reported to have reached the highest stage in 26 years. Notwithstanding timely advices of the different high stages which permitted the taking of steps to minimize the damage, a heavy loss was sustained, principally in the flooding of meadows, breaking of ditches, loss of land by erosion, and destruction of bridges.

Rio Pecos.—On July 21, as a result of rains in northern New Mexico, the Rio Pecos at Santa Rosa was changed from a narrow and shallow stream to a river 9 feet deep and 250 feet wide. Three days later and about the time of the arrival of this upstream flood at Carlsbad, a general rain set in on the watershed. Over a large area north, east, and west of Carlsbad the fall was heavy, and in localities torrential. At Carlsbad 3.75 inches fell in five hours. During the night of the 25th the highest stage

was reached, but the exact height was not reported. On the morning of the 26th the river was 14 feet deep and 300 feet wide. At Barstow, Tex., on the 28th, a stage of 17.6 feet was reached, or only 2.4 feet lower than the memorable flood of October 5, 1904. Information is not available as to the extent and amount of damage.

A VIOLENT LOCAL STORM AT ABILENE, TEX.

By W. H. GREEN, Assistant Observer.

A disastrous thunder and hail storm occurred at this station on the 31st, moving from north to south. The strip damaged by hail is about 10 miles long and about 2 miles wide, beginning about 8 or 9 miles north of Abilene and ending about 1½ miles south of the city. The afternoon preceding the storm was warm and sultry, with a maximum temperature of 98° about 3.30 p. m., and southerly winds of 14 to 18 miles per hour. At 5.48 p. m. the wind shifted from south to southeast, and to northeast by 5.51 p. m., suddenly increasing to a velocity of over 50 miles per hour in about 10 minutes. The temperature dropped from 96° at 5.30 p. m. to 54° at 6.05 p. m., and in the next 15 minutes the pressure increased 0.19 inch. At 6.14 p. m. the wind shifted back through east to southeast, reaching a maximum velocity of 60 miles per hour from the southeast from 6.16 to 6.21 p. m.

Rain began at 6 p. m. and ended at 8.10 p. m., falling at an excessive rate from 6.06 to 7.16 p. m. Practically 3.50 inches, including hail, fell within one hour. Hail varying in size from half an inch to an inch and a quarter in diameter fell from 6.10 to 7 p. m. The hail, with the assistance of the force of the wind, knocked out practically all unprotected window lights in Abilene on the east side of buildings, except in the extreme west part of town, where the hailstones were much smaller than in other sections, while quite a number of window lights on the north and south sides and also those on the east side protected with screens were broken. Several dozen frail buildings were blown off their foundations, a few completely blown down, and two or three destroyed by lightning.

One young man, Vernon Milner, about 25 years old, was killed, being in a barn that was demolished by the wind. Another man, named Cunningham, was blown into Lytle Lake, an artificial reservoir for the city's water supply, and seriously wounded.

There is no evidence of a whirl or gyratory motion of the wind, and the station records show that the wind has reached as high a velocity before this several times, and on two occasions slightly higher, yet the damage from the wind and hail together was probably greater than on any previous occasion. It is believed that \$150,000 is a conservative estimate of the amount of damages in Abilene and vicinity. The damage to the Weather Bureau building and apparatus was comparatively light.

TABLE 1.—Climatological data for July, 1911. District No. 8, Texas and Rio Grande Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.	Prevailing wind direction.
Colorado.																			
Blanca	Costilla	7,865	2	61.9		82	10	41	9†	39	4.12		1.64	0	13	3	26	2	Dr. L. C. Audrain.
Cumbres	Concejos	10,015	4								5.50		0.70	0	22				Mrs. Ida M. Lively.
Garnett	Costilla	7,576	18	62.2	+ 0.5	87	10	41	31	42	2.39	+ 1.20	0.53	0	11	0	18	13	Chas. Spelser.
Hermit	Hinsdale	9,843	4								4.53		0.81	0	20	5	10	16	Marion Mason.
La Veta Pass	Costilla	9,000	1								5.58		1.91	0	13	1	13	17	Clara M. Wright.
Manassa	Concejos	7,700	5	61.2†		83†	10	39†	9†	39†	3.46		0.73	0	16	3	11	15	J. B. Chapman.
Platoro	do	9,675	4								4.86		0.70	0	27	3	13	15	Walter R. Hook.
Saguache	Saguache	7,740	19	64.3	- 0.1	96	13	43	27†	43	3.50	+ 2.05	0.80	0	13	3	4	24	Eugene Williams.
San Luis	Costilla	7,794	20	61.8	- 1.1	82	9†	42	31	39	4.62	+ 2.33	0.93	0	19	7	17	7	P. B. Albright.
Wagon Wheel Gap Experiment Station.	Mineral	9,235	—	54.2		73	9	37	31	34	4.28		0.71	0	20	3	12	16	U. S. Weather Bureau.
New Mexico.																			
Agricultural College	Dona Ana	3,863	48	78.0	- 2.8	98	31	60	25	32	1.36	- 0.40	0.30	0	9	1	30	0	N. Mex. Agricultural College.
Alamogordo (near)	Otero	4,338	10	77.0	- 2.6	99	21	55	25	37	2.75	+ 0.95	0.78	0	18	0	26	5	Charles Sutton.
Alamogordo	do	4,327	2								2.69		0.87	0	12				Agent E. P. & S. W. R. R.
Alamos Ranch	Sandoval	7,800	—								7.69		1.29	0	21	10	8	13	Harold H. Brooks.
Albuquerque	Bernalillo	5,000	35								2.14	0.0	0.60	0	10	14	8	9	Pitt Ross, C. E.
Ancho	Lincoln	6,112	2								4.11		0.91	0	11				Agent E. P. & S. W. R. R.
Anchor Mine	Taos	10,600	—								6.70		0.90	0	14	1	27	3	C. H. Brigham.
Artesia	Eddy	3,350	4	76.4		96	23	56	25	34	7.76		5.50	0	5	25	5	1	Will Benson, C. E.
Aspen Grove Ranch	Rio Arriba	9,000	2								4.46		0.63	0	17	3	27	1	Junius D. Maupin.
Batemans Ranch	do	8,900	2								4.58		0.80	0	13	2	22	7	John W. Bateman.
Bluewater	Valencia	6,732	10	65.6	- 4.6	89	30	47	8	36	5.51		1.15	0	21	3	15	13	Bluewater Development Co.
Boaz	Chaves	4,154	2	76.0		95	12†	53	25	38	1.51		0.52	0	9	6	19	6	D. C. Savage.
Capitan	Lincoln	6,348	2								5.80		0.83	0	22	0	9	22	Agent E. P. & S. W. R. R.
Carlsbad	Eddy	3,120	16	79.2	- 1.0	100	22	60	24	33	5.97	+ 2.64	3.75	0	10	14	12	5	U. S. Reclamation Service.
Carriazo	Lincoln	5,429	3	71.5		94	31	40	23	40	3.61		1.52	0	6	9	21	1	Agent E. P. & S. W. R. R.
Carson Park	Taos	7,650	1																Lester S. Myers.
Chama	Rio Arriba	7,851	12	60.2	- 4.9	79	9	43	31	34	7.94	+ 5.35	1.25	0	17	6	22	3	Frank C. Johnson.
Cloudcroft	Otero	8,650	9	60.4		85	11	45	25	39	6.06	+ 2.53	1.20	0	19	8	16	7	Agent E. P. & S. W. R. R.
Corona	Lincoln	6,666	2																Do.
Coyote	do	5,800	2								5.38		1.62	0	14	6	0	25	Do.
Cundiyo	Santa Fe	6,889	2								3.14		0.88	0	12	7	10	14	Juan Viji.
Demonstration Farm	San Miguel	6,800	2								5.00		1.30	0	14				Erb & Westerman.
Duran	Torrance	6,272	2								7.68		1.52	0	13	6	18	7	Agent E. P. & S. W. R. R.
Elk (near)	Chaves	7,400	11																Boyd Williams.
Escudido	Otero	4,014	2								2.14		0.61	0	16	9	14	8	Agent E. P. & S. W. R. R.
Espanola	Rio Arriba	5,590	13	69.4	- 2.6	89	10	51	13	36	4.25	+ 2.65	1.62	0	16	1	14	16	Mrs. E. F. McBride.
Estancia	Torrance	6,140	6	74.6		95	16	52	20	36	7.79		1.29	0	13	17	8	6	Agent N. Mex. Central R. R.
Fort Stanton	Lincoln	6,231	33	67.6	- 1.5	90	23†	47	25	36	5.62	+ 2.62	0.90	0	19	4	11	16	U. S. Sanitarium.
Fort Sumner	Guadalupe	3,960	3	77.8		90	3	54	24	37	2.11		0.80	0	10	11	20	0	F. A. Manzanares.
Gallinas	Lincoln	6,635	2								3.40		0.68	0	17	7	3	21	Agent E. P. & S. W. R. R.
Gallinas Planting Sta.	San Miguel	7,500	4	61.8		82	18	45	25†	34	9.01		1.80	0	19	8	15	8	U. S. Forest Service.
Glorieta Ranch	Sierra	5,700	—								2.96		0.80	0	12	8	13	10	Charles M. Crossman.
Harveys Upper Ranch	San Miguel	9,400	2								8.32		1.42	0	21	5	17	9	Simon B. Warner.
Hillsboro	Sierra	5,224	13																Dr. Frank I. Givens.
Hodges	Taos	8,484	2																Austin Porter.
Hondo Reservoir	Chaves	3,904	2	77.9		100	23	57	25	34	4.77		2.70	0	11	14	11	6	U. S. Reclamation Service.
Hope	Eddy	4,000	3																A. W. Board.
Jemez Springs	Sandoval	6,100	1	67.0		86	31	52	25	33	4.80		1.15	0	18	5	9	17	Linus L. Shields.
Knowles (near)	Eddy	4,300	1	77.0		97	22†	55	25	32	4.22		2.00	0	10	11	16	4	J. W. Mosley.
Laguna	Valencia	5,840	6	70.6		92	8†	52	4	34	6.26		1.60	0	10	13	4	14	Gus Wells.
Lagunita	Guadalupe	4,500	6																P. A. Turnbull.
Lake Valley	Sierra	5,412	6								4.87		1.27	0	12	1	29	1	William P. Kell.
Las Vegas	San Miguel	6,384	24	67.3	- 1.8	86	18	49	25	35	3.55	- 0.43	0.72	0	16	13	12	6	N. M. Normal University.
Liston	Chaves	5,000	1								2.34		0.65	0	8	3	25	3	H. G. Liston.
Los Lunas (near)	Valencia	4,900	21	73.5	- 3.6	95	31	51	31	44	2.23	+ 1.09	0.61	0	9	6	21	4	Richard Pohl.
Magdalena	Socorro	6,557	6	67.4		90	23	50	31	37	5.40		0.90	0	15	6	23	2	William Pender.
Mescalero	Otero	6,475	0	64.9		84	31	50	25	32	7.76		1.66	0	20	11	11	9	Rev. Richard H. Harper.
Mineral Hill	San Miguel	7,050	6								6.01		0.80	0	17	6	17	8	W. M. Nelson.
Monterey	Otero	4,436	2								1.42		0.40	0	17	5	20	6	Agent E. P. & S. W. R. R.
Mountainair	Torrance	6,547	9																Mrs. John W. Corbett.
Newman	Otero	3,989	2								2.91		1.00	0	9	14	0	17	Agent E. P. & S. W. R. R.
Noria	Dona Ana	4,114	2								4.22		1.28	0	12	10	14	7	Do.
Orange	Otero	5,000	4																James Brownfield, Jr.
Orogrande	do	4,171	2								3.70		0.75	0	14	3	15	13	Agent E. P. & S. W. R. R.
Oscara	Lincoln	5,016	2								4.83		1.50	0	14				Eugene F. Jones.
Otis	Eddy	3,100	2								3.18		2.23	0	7	21	6	4	A. M. Hove.
Otto	Santa Fe	6,200	2								5.19		1.30	0	16				O. H. Johnson.
Pastura	Guadalupe	5,285	2								6.28		1.23	0	19	7	20	4	Agent E. P. & S. W. R. R.
Placitas (near)	Bernalillo	8,000	—	61.2		78	18†	44	25	29	6.34		1.46	0	18	6	23	2	George C. Ellis.
Plainview	Chaves	4,300	—	76.3		102	30	54	25	40	4.75		0.90	0	11	12	15	4	L. P. Adair.
Red River Canyon	Taos	8,956	3	56.2		80	14	32	30	43	5.80		0.90	0	14	5	23	3	Mrs. L. R. Penn.
Rincon	Dona Ana	4,030	13	77.0	- 2.2	98	30	60	25	33	3.69	+ 1.55	1.18	0	12	3	8	20	Charles H. Raitt.
Rio Grande Dam	Sierra	4,265	13																U. S. Reclamation Service.
Rio Grande Industrial School.	Bernalillo	5,000	—	73.7		94	31	49	31	45	3.02		0.90	0	10	8	16	7	Rev. A. C. Heyman.

TABLE 1.—Climatological data for July, 1911. District No. 8—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of overcast days.	
New Mexico—Contd.																					
Tijeras Canyon	Bernalillo	6,214	1								4.16		0.65	0	12	11	12	8	sw.	U. S. Forest Service.	
Torrance	Torrance	6,433	2								11.54		5.80	0	14	0	25	6	sw.	Agent E. P. & S. W. R. R.	
Tres Piedras	Taos	8,076	6																	Edwin B. Seward.	
Truchas	Rio Arriba	7,935	2	60.2		75	9	47	17	26	2.91		0.50	0	16	2	18	11	w.	Miss Ruth Rendon.	
Tularosa	Otero	4,436	3																	Irby L. Fairless.	
Vaughn	Guadalupe	5,952	2			90	30	50	14		4.06		1.25	0	12	0	20	11	nw.	Agent E. P. & S. W. R. R.	
Virgilville	Taos	7,500	1	66.5		85	23	44	7	28	4.74		1.24	0	20	20	7	4	s.	Dr. I. N. Woodman.	
Winsors	San Miguel	8,200	13	58.6	- 0.2	85	17	37	5	43	9.91	+ 5.53	0.97	0	23	2	8	21	w.	Henry D. Winsor.	
Texas.																					
Abilene	Taylor	1,738	26	82.8	+ 0.6	107	23	54	31	44	6.39	+ 3.99	3.81	0	9	3	18	10	s.	U. S. Weather Bureau.	
Albany	Shackelford	1,429	17	82.2	+ 1.1	109	23	59	25	42	4.14	+ 1.19	1.68	0	4	16	9	6		N. L. Bartholomew.	
Alie	Nueces	209		86.4		103	21	71	26	27	1.35		0.80	0	5	15	11	5	se.	R. M. Boerum.	
Alpine	Brewster	4,482	1								3.27		1.35	0	4	17	14	0	se.	J. Frank Dobie.	
Alvin	Brazoria	49	13	79.8		94	1	68	7	71	22	+ 5.41	4.48	0	8	9	9	12	s.	Alvin Japanese Nursery.	
Anahuac	Chambers	23	2								4.58		2.12	0	13					B. H. Collins.	
Antelope	Jack										3.76		1.75	0	6	11	16	4		Chas. C. Hawkins.	
Aspermont	Stonewall										2.06		0.80	0	9					Bryant Link Co.	
Austin	Travis	593	55	84.2	+ 0.5	99	23	60	18	30	1.86	- 0.54	1.38	0	4	10	16	5	s.	A. Deussen.	
Ballinger	Runnels	1,637	15	84.2	+ 2.1	111	23	64	25	37	1.49	- 1.55	0.42	0	7	11	10	10	s.	E. M. Eubank.	
Barstow	Ward	2,573	4	83.0		109	23	64	25	40	0.85		0.30	0	3	12	11	8	e.	Lee F. Freeman.	
Bay City	Matagorda	53	1								2.71		0.80	0	9	10	3	18	s.	E. C. Quereau.	
Beaumont	Jefferson	29	10	80.8	- 2.1	96	1	67	27	25	8.91	+ 3.95	3.43	0	12	4	0	27	se.	John Bender.	
Beeville	Bee	225	15	84.3	+ 0.5	99	17	70	4	25	0.13		3.71	0.08	0	2	12	17	se.	L. E. Dickey.	
Big Springs	Howard	2,396	13	85.1		109	23	62	25	35	1.34	- 1.65	0.45	0	6	6	20	5	s.	E. Reagan.	
Blanco	Blanco	1,350	15	84.4	+ 2.7	101	12	67	4	30	1.37		2.16	0.77	0	3	13	17	1	s.	R. C. Crist.
Boerne	Kendall	1,412	19	83.8	+ 3.1	102	23	65	26	29	1.70	- 1.97	1.06	0	3	5	21	5	se.	F. W. Schweppe.	
Booth	Fort Bend	81	10								4.51	- 0.52	0.84	0	15	14	0	17	se.	T. R. Booth.	
Bowie	Montague	1,113	16	84.0	+ 0.7	107	23	61	25	37	4.40	+ 2.01	1.64	0	12	6	15	10	s.	Craig Anderson.	
Brady	McCullough	1,500	10																	G. W. Virling, Jr.	
Brazoria	Brazoria	25	22	80.4	- 1.1	92	17	69	29	21	14.28	+ 8.97	2.41	0	20	20	5	6	s.	Mrs. M. A. Stevens.	
Brazos	Palo Pinto	801	2								5.62		1.40	0	8	10	15	6	s.	Robt. E. Boyett.	
Brenham	Washington	350	26	82.6	- 0.7	97	5	69	25	23	4.31	+ 1.20	1.34	0	12	5	13	13	se.	Mrs. B. F. Sloan.	
Bridgeport	Wise	754	2								2.96		1.30	0	6	8	12	11	s.	Claude Strange.	
Brighton	Nueces	12	18	84.4	+ 1.5	95	4	70	25	23	2.85	+ 1.56	2.50	0	2	26	3	2	se.	G. H. Ritter.	
Brownsville	Cameron	38	47	83.0	- 0.8	96	26	70	26	26	0.63	- 1.25	0.40	0	4				se.	U. S. Weather Bureau.	
Brownwood	Brown	1,342	19	83.8	+ 0.4	110	23	61	26	34	4.43	+ 2.33	2.90	0	4	7	21	3	s.	Mrs. Pearl Smith.	
Cameron	Milam		3	84.6		100	3	66	24	29	4.87		2.50	0	5	19	4	8	s.	J. E. Watts.	
Carmona	Polk	330	3	81.2		98	1	62	26	31	4.52		1.43	0	13	8	21	2	se.	M. S. Spittler.	
Claytonville	Fisher	2,100	16	83.1	+ 2.1	110	23	60	27	38	1.26	- 2.42	0.50	0	5	3	13	15	se.	Wm. Lanius.	
Clifton	Bosque	671									7.35		4.14	0	8	2	28	1	s.	R. M. Jones.	
Coleman	Coleman	1,710	17	82.4	+ 1.4	106	23	63	26	30	4.92	+ 1.78	1.15	0	10	8	18	5	s.	J. E. Stevens.	
College Station	Brazos	308	21	83.7	+ 0.3	101	4	66	26	31	5.67	+ 2.98	2.74	0	12	0	22	9	s.	Prof. G. S. Fraps.	
Colorado	Mitchell	2,066	17	81.4	- 1.2	107	23	59	26	37	3.20	+ 0.04	1.33	0	8				s.	R. M. Webb.	
Columbia	Brazoria	34	22	81.2	- 0.8	97	17	67	27	26	9.10	+ 4.88	2.85	0	8	8	20	3	s.	R. B. Loggins.	
Columbus	Colorado	206	7								4.14		2.00	0	7	10	13	8	ne.	Mrs. Sophie Bridge.	
Corpus Christi	Nueces	20	24	81.8	- 0.9	92	17	71	25	17	2.04	+ 0.38	1.96	0	5	16	11	4	se.	U. S. Weather Bureau.	
Corsicana	Navarro	445	22	82.2	- 1.7	100	4	63	26	25	4.66	+ 2.01	2.70	0	10	10	16	5	s.	D. H. Winn.	
Cotulla	Lasalle	425	4								0.00		0.00	0	0					Holland Agricultural Co.	
Crockett	Houston	350	7	82.4		100	1	63	25	29	7.15		3.00	0	11	5	23	3	s.	A. M. Rencher.	
Cuero	De Witt	177	21	85.6	+ 0.8	103	24	66	26	28	2.84	+ 0.17	2.12	0	5	19	2	10	s.	H. R. Froese.	
Dallas	Dallas	466	22	83.8	- 0.1	106	5	60	26	33	5.34	+ 1.94	2.08	0	12	7	1	23	s.	G. A. Eisenlohr.	
Danevang	Wharton	145	15	83.6	+ 0.4	99	2	62	26	31	3.23	- 1.67	1.00	0	11	13	10	8	se.	H. P. Hermansen.	
Decatur	Wise	1,047	15																	Ft. W. & D. C. Ry.	
Del Rio	Valverde	952	5	86.3	+ 1.6	105	22	67	26	27	0.54	- 1.68	0.28	0	5	17	12	2	se.	U. S. Weather Bureau.	
Devine	Medina	653	1	87.2		106	22	72	1	32	0.38		0.20	0	3	21	10	0	se.	M. A. Keller.	
Dialville	Cherokee	575	7	80.8		100	5	62	25	28	8.70		2.60	0	8	9	15	7	s.	J. M. B. McKnight.	
Dilley	Frio	569	1								0.00		0.00	0	0					John W. Miller.	
Dublin	Erath	1,466	15	83.3	+ 1.5	106	23	61	26	31	4.06	+ 1.42	1.52	0	9	3	23	5	s.	Jno. O. Shafer.	
Duval	Travis	820	22	83.2	- 1.2	99	23	66	18	26	2.47	- 0.17	1.55	0	4	15	11	5	se.	J. C. Edgar.	
Eagle Pass	Maverick	800	34	87.4	- 0.4	104	22	68	25	28	0.08	- 1.68	0.04	0	3	17	13	1	se.	Charles Tarver.	
Eastland	Eastland	1,420	4	83.8		110	23	55	26	38	1.10		0.60	0	2	6	23	2		J. R. Gilbreath.	
Edna	Jackson	71	2								1.43		0.70	0	3					E. L. Faires.	
El Paso	El Paso	3,762	32	77.4	- 3.1	97	31	60	25	29	3.43	+ 1.30	1.47	0	15	6	21	4	e.	U. S. Weather Bureau.	
Encinal	La Salle	558	3																	H. C. Braden.	
Eola	Concho																			E. W. Neal.	
Fairland	Burnet	1,000	22	84.6	+ 1.9	104	5	65	26	33	2.93	+ 1.04	1.35	0	7	15	14	2	s.	R. L. Bush.	
Falfurrias	Starr	3	85.8		105	21	68	26	35	0.81	0.45		0.45	0	2	20	10	1	se.	W. A. Gardner.	
Flaton	Fayette	465	3	83.6		100	5	68	18	27	1.67		1.20	0	5	8	11	12	s.	Fred W. Laux.	
Flint	Smith	483	1	82.2		101	1	60	26	31	3.17		1.00	0	11	11	10	10	sw.	F. C. C. Carter.	
Floydada	Floyd										5.81		2.38	0	11					F. H. Schmidt.	
Fort Clark	Kinney	1,																			

TABLE 1.—Climatological data for July, 1911. District No. 8—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.			Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.			Number of partly cloudy days.
Texas—Continued.																			
Henderson	Rusk	500	2							14.95		4.50	0	10	9	12	10	M. Kangerga.	
Hewitt	McLennan	664	16							5.72	+ 2.36	2.79	0	6				I. H. Earle.	
Hico	Hamilton									3.67		1.14	0	7	21	4	6	John A. Eakins.	
Hillsboro	Hill	628	8	84.6		102	4	64	25	32	4.55		3.85	0	5			W. G. Escott.	
Hondo	Medina	901	12	85.8		103	21†	69	4	29	0.67	- 2.66	0.35	0	4	21	10	0	H. E. Haass.
Houston	Harris	138	21	81.4	- 1.6	93	24	69	26	21	6.59	+ 2.71	1.73	0	13	8	17	6	U. S. Weather Bureau.
Huntsville	Walker	400	27	82.1	- 1.3	96	1†	66	26†	25	3.87	+ 0.96	0.78	0	7	13	0	18	W. Y. Barr.
Jayton	Kent		1								2.85		1.00	0	7	5	20	6	Wichita Valley Railway.
Jewett	Leon	496	7	84.0		103	3†	62	25	34	3.98		1.80	0	4	15	7	9	Earle Adkisson.
Junction	Kimble	1,645	8	81.3		105	23	58	25	36	3.00		2.00	0	2	7	15	9	Judge John S. Durst.
Kaufman	Kaufman	448	12	83.8	- 0.2	105	4	64	24†	31	5.61		2.00	0	6	13	12	6	B. J. Hubbard.
Kerrville	Kerr	1,650	15	83.4	+ 3.3	101	21†	63	26	29	1.21	- 2.55	0.82	0	4	10	7	14	Robert E. Horne.
Knickerbocker	Tom Green	2,050	7	84.5		109	23	60	24	33	1.49		1.10	0	4	17	10	4	Jos. Tweedy.
Kopperl	Bosque	576	14								4.08	+ 1.34	1.75	0	6				T. A. Johnson.
Lagrange	Fayette	276	1								2.49		1.25	0	7	14	4	13	August Hermes.
Lamesa	Dawson	2,500	1								3.24		1.12	0	8				S. D. Austin.
Lampasas	Lampasas	1,026	19	83.0	+ 0.4	102	22	64	26	31	3.35	+ 1.49	0.98	0	7	20	3	8	Mrs. K. I. Webber.
La Parra	Cameron	38	9																Jno. G. Kenedy.
Laureles Ranch	Nueces	20	11																Matt Cody.
Liberty	Liberty	38	7	80.4		94	3†	67	27	23	8.93		5.35	0	9	12	11	8	Mrs. Fannie Sneed.
Llano	Llano	1,040	20	85.9	+ 0.6	104	22†	69	18†	29	1.11	- 0.63	0.46	0	5	13	14	4	E. W. Torrence.
Llano Grande	Hidalgo	86	3			99	22†				2.30		0.73	0	7	1	5	25	M. D. Wardlow.
Long Lake	Anderson	229	6								3.39		1.17	0	9	6	10	15	Geo. W. Ellis.
Longview	Gregg	336	25	83.6	- 0.1	104	3†	63	25†	36	6.08	+ 2.85	1.53	0	13	14	0	17	C. A. Probst.
Lubbock	Lubbock										6.75		2.02	0	9	7	18	6	A. L. Paschall.
Lufkin	Angelina	325	4	81.3		98	1†	65	25†	28	11.40	+ 1.23	4.00	0	11	13	12	6	T. A. King.
Luling	Caldwell	418	22	85.0	+ 0.9	100	21	70	18†	26	4.00		1.80	0	7	14	9	8	John Carter.
McGregor	McLennan	713	1								4.73		3.20	0	4	18	10	3	W. H. Whitley.
Marathon	Brewster	4,043	1	73.6		97	23	55	25†	37	4.60		1.10	0	8	14	9	8	Rev. A. P. Willis.
Marble Falls	Burnet	771	3								2.36		1.60	0	3	9	5	17	R. H. Cochran.
Marfa	Presidio		3								2.55		0.80	0	6				R. K. Colquitt.
Marshall	Harrison	375	2	80.8		102	5	59	25	32	7.51		2.67	0	11	0	24	7	Lee Scott.
Matagorda	Matagorda	12	1								2.85		0.75	0	6	25	6	0	W. E. McNabb.
Mexia	Limestone	537	7	81.6		101	5	62	25†	29	3.61		1.85	0	10	2	16	13	Miss Josephine Newman.
Midland	Midland		4								3.15		1.24	0	4	2†	19†	0†	W. H. Neel.
Mission	Hidalgo	140	1	84.3		100	10†	70	4†	28	1.09		0.56	0	4	12	19	0	Glenn Perryman.
Mont Belvieu	Chambers	65	1								4.79		1.85	0	12	0	20	11	A. R. Shearer.
Mountain View	Pecos	2,900	1																Lucius W. Gosselin.
Mount Blanco	Crosby	2,750	22	78.1	- 0.5	98	12	57	25	30	3.52	+ 0.33	1.33	0	5	7	7	17	H. C. Smith.
Nacogdoches	Nacogdoches	271	12	79.6	- 1.2	96	1	64	26	25	11.17	+ 6.13	2.75	0	12	11	3	17	Miss Mary Hofmann.
New Braunfels	Comal	720	22	83.4	+ 0.6	99	21†	68	4†	26	0.79	- 1.90	0.44	0	4	11	18	2	J. Giesecke.
Palestine	Anderson	510	29	79.9	- 1.6	95	5	63	26	27	3.72	+ 0.72	1.58	0	12	4	19	8	U. S. Weather Bureau.
Panther	Hood	1,000	22								3.75	+ 1.03	1.03	0	6				E. H. Snider.
Pearsall	Frio	629	1								0.57		0.47	0	3				Ernest De Vilbiss.
Pierce	Wharton	102	5	77.6		93	1†	64	18	28	4.73		1.07	0	13	5	9	17	R. B. Pointer.
Plainview	Hale	3,370	15	75.0	- 1.8	97	6	52	25	33	10.06	+ 6.29	2.17	0	12	12	16	3	J. F. Sander.
Port Arthur	Jefferson										9.31		2.50	0	9				Griffin Bros. Co.
Port Lavaca	Calhoun	20	10	83.4	+ 0.4	97	13†	70	6	23	3.79	- 0.48	1.43	0	5	15	14	2	J. H. Bickford.
Post City	Garza	2,700	1								3.19		0.80	0	9	14	13	4	W. L. Dodd.
Putnam	Callahan	1,591									2.20		1.23	0	9	7	18	6	Rev. Joseph Reisdorf.
Raymondville	Cameron										0.78		0.46	0	5	11	19	1	C. H. Pease.
Ricardo	Nueces	57	2	83.2		101	21	70	5†	25	0.98		0.90	0	3	16	11	4	Lindsay Waters.
Riverside	Walker	169	7								6.90		2.40	0	8	22	1	8	Mrs. C. W. Higdon.
Robert Lee	Coke	1,850	12																H. D. Pearce.
Rockland	Tyler	136	7								5.72		1.10	0	12	8	9	14	T. W. Bellamy.
Rockport **	Aransas	12	10	82.2	- 0.8	89	19	73	25	9	1.25	- 1.23	1.25	0	1	15	12	4	Mrs. G. B. Grewe.
Rossville	Atascosa	558	4	86.6		106	21	63	25	32	0.90		0.47	0	3	9	21	1	W. F. M. Ross.
Runge	Karnes	308	16								2.25	- 0.88	1.45	0	4				Reiffert & Froese.
Sabinal	Uvalde	964	7	85.6		104	21†	68	4	32	0.33		0.20	0	3	6	18	7	Jas. Johnston.
Salado	Bell		1								3.74		2.93	0	4	13	0	18	L. M. Crockett.
San Angelo	Tom Green	1,847	20	84.5	+ 1.1	108	23	61	27	35	4.80	+ 2.17	2.84	0	6	19	7	5	Sam Crowther.
San Antonio	Bexar	701	26	84.1	+ 1.7	102	21	64	25	28	1.03	- 1.19	0.33	0	7	12	11	8	U. S. Weather Bureau.
San Augustine	San Augustine	360	2	81.0		98	3	63	26	27	6.38		3.65	0	11	5	9	17	F. A. Wilson.
San Juanito	Hidalgo		2	86.8		104	21	69	26	32	1.07		0.38	0	5	0	4	27	J. B. McAllen.
San Marcos	Hays	588	18	83.6	+ 0.6	100	23	68	26	26	0.22	- 3.57	0.12	0	2	19	0	12	Miss L. C. Ford.
San Saba	San Saba	1,712	10	83.7	+ 1.8	105	22†	61	26	34	1.03	- 1.73	0.40	0	7	20	11	0	Jas. Burns.
Santa Gertrudes	Nueces		11								1.01	- 1.19	0.75	0	2				J. B. Wright, Jr.
Sealy	Austin	201									5.68		2.50	0	13	7	13	11	O. H. Albert.
Seymour	Baylor	1,320	5	81.3		108	6†	58	26	38	5.40		1.85	0	10	13	0	18	S. C. Lee.
Snyder	Scurry			82.2		106	22†	58	26	36	1.42		0.48	0	8	4	14	13	J. Allen Weaver.
Somerville	Burleson	251	2	83.6		99	5	66	26	28†	2.74		1.49	0	5	20	4	7	W. A. Dolan.
Spur	Dickens	2,300		80.6		102	6	61	26	31	4.97		1.85	0	10	12	12	7	J. D. Reagan.
Stamford	Jones			81.4		106	23	62	26	30	1.46		0.43	0	10	6	23	2	T. A. Williams.
Stowell	Chambers										5.20		3.10	0	6	11	0	2	

TABLE 2.—Daily precipitation for July, 1911. District No. 8, Texas and Rio Grande Valley.

Stations.	Watershed.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Colorado.																																	
Blanca	Rio Grande.	T.	1.64	T.				.29	.02																							T.	4.12
Cumbres	do.	.53	.70	.40	.04	.10					.06	.31	.27	.03	.57	.02	.01	.04	.18	.25	.55	.20	.44	T.	T.	.05	.31	.30	.04	.15		T.	5.50
Garnett	do.	.53	.22	.41	.03		.10						.07	.05	.81	.10	T.	.43	.06	.03	T.			.18	.40	.08	T.	T.	T.	.10	T.		2.89
Hermit	do.	.22	.52	.26	.25	T.	.10	.51					.07	.05	.81	.10	T.	.43	.06	.03	T.			.18	.40	.08	T.	T.	T.	.10	T.		4.53
La Veta Pass.	do.		1.91			.18	.09						.18	.30	.09	.11	.93	.59	.74	.15			.23		.08								5.58
Manassa	do.		.61	.07	T.	.10		.15	.08			.46	T.	.25	.17	.03	.02	.32	.73	.20	.15		.05	T.	.07								3.46
Platoro	do.	.07	.55	.24	.16	.08	.06	.30	.08				.21	.33	.32	.02	.13	.06	.13	.70	.52	.12	.03	.13	.05	.06	.05	.13	.10	.13	.10	T.	4.86
Saguache	do.	T.	.80	.53									.20		.50			.35	.10	.20	.10	.15	.12	.25	.10	.10						3.50	
San Luis	do.	.15	.93	.03	T.	.06	.18	T.	.03			.12	.28	.77		.05	.08		.11	.04	.49			.18	.57		.10	.33		.12			4.62
Wagon Wheel Gap	do.																																
Experiment Sta.	do.	.43	.20	.17	.14	T.	.37	.10	.02			T.	.10	.68	.26	.02	T.	.05	.31	.17	.05	T.	T.	.44	.18	.54	T.	.04	T.	.01	T.		4.28
New Mexico.																																	
Agricultural College	Rio Grande.	.25	.02				.11			.27	.30			.06	.10	.10																	1.36
Alamogordo (near).	do.		.78	.04	.02	.02	.12	.15	.01	T.	.06	.09	.25	T.	T.	.04	.04	.01	T.	.15	T.					.04		.23	.67			.03	2.75
Alamogordo.	do.	.70	.02		T.	.10	.22			.05	.08	.31	.24	.15	.38	.17	T.	.05	.04	.26	.20	.49	.34	.08	T.	.02		.87				.03	2.69
Alamos Ranch	do.	.37	.73			.43	.06	1.00	T.																	.64	.05	.05	.20				7.09
Albuquerque.	do.	.07	.60	.06		.18	.03			.25						.44								.22	T.								2.14
Ancho	do.	.43	.36		.91	.38	.30	.70		.50	.13							.15				.11	.14										4.11
Anchor Mine	do.	.30	T.	.60		.90		.20				.30	.80	.40	.60	.30	T.			.50				.70	.60			.30	.20				6.70
Artesia.	Pecos.		.40			.11									1.65										.50						.10		7.76
Aspen Grove Ranch	Rio Grande.	.11	.48	.32		.49							.32	.11	.52		.63		.38		.38		.12	.02	.34	.32	.06	.05		.03	.16		4.46
Batemans Ranch.	do.	T.	.73	T.	T.	.08	.37	.04	T.			.08		.20	.05		.30		.75	.80			.59		.59			.19	.40				4.58
Bluewater	do.	.35	1.15	.36	.15	.06	.05	.25	.02			.47	.05	.23			.33	.25	.09	.13	.03			.03	.68	.03	.12	.08					5.51
Boaz	Pecos.					.28				.18				.05	.12									.07	.20								1.51
Capitan.	do.	.22	.62	.43	.03	.03		.09	.10	.26	.83	.35		.45		.03	.01	.11	.32	.07	.05	.30		.40	.41	.47	.20						5.80
Carlsbad.	do.		.09			.05	.65	.10	.31	.16				*	.68																		5.97
Carrizozo.	Rio Grande.	1.52	.04					T.				T.		.05			1.52		.17			.31					T.	T.					3.61
Carson Park	do.																																
Chama	do.	.65	1.25	.20		.10	.70	.08	T.			.48	.30	.17			.25		T.	1.00	.37	.38	T.	T.	.48		.62	.77	.14				7.94
Cloudcroft	Pecos.	.94	.60	.80	.28	.05	T.	1.20	.15	.09	.13			.06	.38	.20	.24		.02	.13	.26	.20			.05			.29					6.06
Corona.	do.																																
Coyote.	Rio Grande.	1.10	.21	.65	.09	.14	.02	.77	.02		.44							1.62		.06	.07						.06	.13					5.38
Cundiyo.	do.	.38	.50	.20		.02	.10					.01		.23	.03		.09			.80					.48								8.14
Demonstration Fm.	Pecos.	.41	.06			.45	.10			.16		.20		.65	.22		.24				.79	.10	1.30					.20		.12			5.00
Duran.	do.	.30	.40	T.	.20	.10	.76	1.52	T.		1.31		.10	.34					1.0	T.	1.48	.92	.15										7.68
Elk.	do.																																
Escondido.	Rio Grande.	.55	.01	.01	.03	.01		.02	.30	.03	.52	.09	T.	.07	T.	T.	T.			.07					.01		.17	.24			.01		2.14
Espanola.	do.	.20	.17	.48	.05	.15	.12		.34				.04	.02	.05	.11					.38	.30	.07	1.62			.15						4.25
Estancia.	do.	.82	1.21	.10	T.	.42	.29	.17	.42	.33	.45			1.29			1.10		.96		.02				.88		.14						7.79
Fort Stanton.	Pecos.	.36	.90	.44	.13		.01	.12	.50	.05	.69	.03	.02	.61	.09		.33	.14		.02		.21	T.	.04	T.	.03	.16						5.62
Fort Sumner.	do.				.03	T.	.28	T.	.35	T.	.10	T.	.24	T.	T.		.03		.03	.09	.05	.35			.12	T.	.13						2.11
Gallinas	do.	.08	.68	.19	.09	.30	.25	.28	.14	.53	.08	.01	.15	.27	.19	.24	.10	T.	.54		.10	.03			.62	.11	T.	.03					3.40
Gallinas P't'g Sta.	do.	.63	.59	.55	.04	.35			.81	.09	.01	.15	.27	.19	.24	.10	T.	.54		.10	.03				.62	.11	T.	.03					9.01
Glorieta Ranch	Rio Grande.	.32	.33	T.	.31	T.	.01	T.	.31	T.	.62	.03		.10											.47	.33							2.96
Harveys Upper Rch	Pecos.	.46	.67	.32		.37	.23		.31	.64	.86	T.	.18	.64	.23		.60	T.	.26	.07	.19	.11			.14	T.	.07	.16	.39	1.42			8.32
Hillsboro.	Rio Grande.																																
Hodges	do.																																
Hondo Reservoir	Pecos.		T.	.09				.01	.24	T.	.08	.07				.11		T.	.03		.53		.40			2.70					.51		4.77
Hope	do.																																
Jemez Springs	Rio Grande.	.25	.33			.17	1.15	.05	.15			.55	.05	.03	.22	.03	.30	.23	.01	T.	T.	.10	.50		.54	T.		.14					4.80
Knowles (near).	Pecos.					T.	.01	.12	.12					1.25	.75		.41	.06	.53		.02				.95								4.22
Laguna.	Rio Grande.	1.60	1.55	T.	.35	.35	.95	T.				T.	T.		.25	.45					.20		.30				T.	.26	T.				6.26
Lagunita.	Pecos.																																
Lake Valley	Rio Grande.	.24		.15	.73		.19	.04	.01	.27	.12			T.	T.		1.02					.01			.67		.40						4.87
Las Vegas.	Pecos.	.72	.18	.03		.13	.17	T.		.10	.08			.07	.64		.05				.15	.17		.18	.54		.40	.04	T.				3.55
Liston.	do.		.13			.61				.21	.11																						

Stations.	Watershed.	Day of month.																																Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Texas.																																			
Ablene.	Brazos.		T.	T.			.18							.16	.28		T.	.75				.12		T.	.01					.08	.06	3.75	6.39		
Albany.	do.		T.	T.			.18							.16	.28		T.	.75				.12		T.	.01					.08	.06	3.75	6.39		
Alice.	Coast.				.80	.10								.20												.20	.06					.05	1.35	1.35	
Alpine.	Pecos.														.56																		3.27	3.27	
Alvin.	Coast.						.05	.81	4.48																								12.34	12.34	
Anahuac.	do.		.59				.20	.12	.12						.40	.07	.22								1.60	T.	2.90						.44	8.76	8.76
Antelope.	Trinity.			T.											.03	.24										.02	.05	.05					.50	2.06	2.06
Aspermont.	Brazos.						.10	.04	.15						.40	.80	.04	.27					.09								.04			1.87	1.87
Austin.	Colorado.						.30									.15	.08	1.38							T.	.20	.35				.05	.02		1.43	1.43
Ballinger ||.	do.				.42											.15	.08	1.38							T.	.20	.35				.05	.02		1.43	1.43
Barstow.	Pecos.						.29								.30																			0.85	0.85
Bay City ||.	Colorado.		.25	.25		T.			.32	.22			.20		.13								T.				.80	.30						2.71	2.71
Beaumont ||.	Neches.			1.17			.39	1.05	3.43	T.					.06	.49	.09	.83	.90	T.	T.						.12					.06	.32	8.91	8.91
Beeville ||.	Coast.		T.	.05		T.									.08													T.						0.13	0.13
Big Springs.	Colorado.																																	1.34	1.34
Blanco ||.	Guadalupe.		T.	T.	T.						T.				.41	.02	.01		.03		T.				.45									1.37	1.37
Boerne.	San Antonio.	1.06						.06							.58																			1.70	1.70
Booth ||.	Brazos.						.14	.46	.06	.04	.26				.27	.60	.																		

TABLE 3.—Maximum and minimum temperatures at selected stations for July, 1911. District No. 8, Texas and Rio Grande Valley.

Date.	Colorado.				New Mexico.																Texas.								
	Garnett.		San Luis.		Agricultural College.		Carlsbad.		Fort Stanton.		Mountain-air.		Rosedale.		Roswell.		Santa Fe.		Santa Rosa.		Abilene.		Big Springs.		Brownsville.		Corpus Christi.		
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
1....	80	50	70	51	84	66	94	71	76	57	.....	.....	69	54	93	67	70	56	92	61	94	73	97	72	86	71	84	78
2....	64	51	69	52	89	64	93	67	70	54	.....	.....	69	54	88	66	62	55	90	59	93	72	97	70	88	73	86	76
3....	73	48	73	50	89	65	92	63	74	53	.....	.....	70	51	90	61	67	54	91	64	95	73	100	67	88	73	85	78
4....	73	47	74	46	91	66	94	66	78	54	.....	.....	72	51	93	62	76	53	91	65	96	71	100	69	90	71	85	74
5....	77	47	73	49	88	63	98	66	82	53	.....	.....	76	56	96	62	76	55	96	57	99	74	103	73	90	72	88	76
6....	73	54	70	52	82	66	98	65	80	54	.....	.....	70	51	94	66	73	54	89	63	100	75	103	81	91	74	90	76
7....	72	48	77	47	86	66	96	69	77	54	.....	.....	68	53	90	64	70	54	89	61	91	73	98	79	90	76	86	79
8....	78	47	76	49	88	67	95	67	77	53	.....	.....	72	53	87	63	76	53	92	62	90	73	92	78	88	77	86	79
9....	83	42	82	43	89	67	92	66	78	55	.....	.....	77	53	90	66	78	56	92	62	95	75	92	76	90	74	86	79
10....	87	45	82	47	82	65	87	68	72	53	.....	.....	73	53	84	64	73	54	87	60	95	74	95	77	92	74	86	79
11....	80	51	80	49	89	64	90	67	77	54	.....	.....	71	57	90	64	75	57	92	62	96	76	101	79	91	74	86	76
12....	81	54	75	54	91	66	95	67	83	69	.....	.....	77	54	95	65	77	57	96	65	99	77	106	80	92	76	87	76
13....	73	54	74	48	92	67	93	70	78	59	.....	.....	79	54	86	70	73	58	80	64	89	74	95	80	93	74	88	77
14....	74	52	73	52	86	68	95	68	79	55	.....	.....	75	53	85	67	73	53	84	62	84	71	92	70	94	73	87	79
15....	80	46	78	47	92	69	87	67	82	56	.....	.....	72	53	88	66	78	54	88	61	92	69	93	71	92	75	88	77
16....	75	48	76	47	91	67	79	65	80	55	.....	.....	77	55	91	65	74	57	83	64	90	72	93	69	92	75	90	76
17....	79	45	77	45	91	61	83	67	83	55	.....	.....	76	59	92	66	78	53	94	61	92	67	96	71	92	77	92	75
18....	75	50	77	50	93	68	90	65	86	56	.....	.....	78	54	93	65	76	58	95	62	91	69	93	68	91	76	86	79
19....	72	50	73	53	88	69	93	69	77	57	.....	.....	75	56	95	70	75	58	93	65	94	74	100	75	92	77	86	79
20....	71	54	75	53	91	71	92	71	87	55	.....	.....	77	54	93	68	76	55	88	61	95	77	99	73	92	77	86	80
21....	75	50	74	50	96	68	97	72	80	56	.....	.....	74	54	92	68	76	57	89	62	97	76	98	73	91	77	87	78
22....	81	47	76	52	93	64	100	68	87	57	.....	.....	81	52	96	68	78	54	91	64	102	73	107	74	91	76	86	78
23....	77	48	77	49	95	65	96	69	90	55	.....	.....	80	55	98	65	80	55	91	66	107	79	109	74	91	78	82	77
24....	72	48	68	47	80	72	85	60	77	51	.....	.....	71	55	76	62	65	54	96	58	83	67	94	64	93	78	86	78
25....	70	45	70	47	85	60	80	61	72	47	.....	.....	67	52	77	58	69	51	81	52	85	65	87	62	91	76	83	71
26....	79	46	76	48	91	65	88	62	80	52	.....	.....	72	52	86	59	75	56	92	60	88	63	92	62	96	70	86	75
27....	77	45	77	48	87	64	92	67	80	57	.....	.....	70	52	87	67	73	53	93	62	95	71	98	70	92	75	86	76
28....	79	46	77	47	92	67	95	67	86	53	.....	.....	76	55	92	65	78	53	99	60	96	73	100	74	91	76	85	78
29....	80	43	78	43	95	68	94	70	86	54	.....	.....	81	53	94	67	75	52	93	60	91	71	98	72	92	75	86	78
30....	80	43	79	43	97	72	95	69	90	54	.....	.....	83	56	91	63	80	54	97	59	97	72	103	70	92	75	86	76
31....	81	41	78	42	98	66	96	65	88	53	.....	.....	83	59	95	60	81	54	97	60	98	54	101	70	92	75	87	77
Mns..	76.5	47.9	75.3	48.4	89.7	66.3	91.4	66.9	80.4	54.8	74.5	54.0	90.2	64.8	74.4	54.7	91.0	61.4	93.8	71.7	97.8	72.4	91.2	74.8	86.5	77.1	

Texas.

Date.	Del Rio.		El Paso.		Fort McIntosh.		Fort Stockton.		Fort Worth.		Galveston.		Hallettsville.		Houston.		Lufkin.		Palestine.		Plainview.		San Antonio.		Seymour.		Taylor.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	93	75	88	68	96	75	92	68	97	75	87	80	88	77	92	74	98	70	94	72	91	59	91	74	100	65	88	70
2....	93	74	84	66	94	73	92	68	96	76	86	80	90	74	90	74	95	72	90	72	90	60	91	72	98	71	88	73
3....	93	72	85	68	95	73	91	67	98	80	87	79	96	73	93	75	98	70	94	72	92	60	93	74	100	66	93	73
4....	93	70	90	69	97	72	93	65	101	78	84	78	96	73	92	75	93	73	93	74	94	61	95	70	102	65	96	72
5....	97	71	88	69	99	73	95	65	101	78	86	75	97	73	93	75	97	70	95	68	94	61	96	73	106	72	97	73
6....	98	74	85	68	101	74	97	65	99	75	85	70	90	77	83	72	85	68	85	69	97	64	91	74	108	70	82	73
7....	98	78	87	67	100	76	95	68	96	72	81	75	95	75	86	73	86	71	89	72	94	64	95	72	88	65	94	72
8....	96	78	85	69	98	77	93	68	98	73	82	70	95	75	86	71	91	71	84	72	92	64	95	76	90	66	91	70
9....	95	78	85	66	98	77	92	66	93	73	86	80	95	75	88	74	91	70	89	72	89	64	94	73	99	66	95	70
10....	96	77	81	61	101	78	92	65	94	74	86	80	95	75	89	72	94	70	89	73	89	64	96	75	98	65	93	75
11....	98	76	85	63	102	75	97	68	97	76	86	76	96	73	92	75	95	69	92	74	92	62	96	74	103	70	95	72
12....	99	78	90	68	100	77	99	67	96	73	86	74	99	75	89	72	94	70	92	72	95	66	96	74	108	72	94	74
13....	98	76	91	65	100	76	97	69	91	71	82	74	96	74	83	73	97	71	88	74	85	66	96	74	95	62	95	76
14....	98	76	80	69	100	78	78	67	88	68	85	74	90	77	86	73	96	69	87	73	79	64	95	72	93	64	94	75
15....	94	75	86	68	101	77	89	67	91	68	83	75	96	75	86	72	81	72	80	72	87	61	93	72	95	64	93	74
16....	99	73	88	71	104	76	93	67	88	73	85	71	96	77	91	74	90	69	88	69	82	66	93	75	94	66	94	72
17....	100	78	91	68	104	77	98	66	93	70	87	79	100	76	91	75	92	70	87	71	88	60	99	75	94	64	96	71
18....	100	77	91	71	105	76	98	69	83	70	82	71	92	70	86	75	88	71	87	68	81	61	96	74	83	62	89	66
19....	101	78	84	68	104	89	99	70	90	75	87	81	95	75	90	76	93	72	89	73	89	66	98	76	95	67	93	74
20....	99	80	89	73	108	78	103	74	93	76	87	82	97	77	91	76	91	73	88	75	84	62	98	77	92	70	93	76
21....	104	78	88	61	107	87	100	72	89	79	87	81	97	77	91	75	90	75	88	76	86	64	102	74	92	65	95	75
22....	105	78	91	70	106	77	109	73	88	75	86	81	98	78	93	75	92	77	84	76	85	63	101	75	103	72	97	76
23....	104	77	94	70	107	77	107	71	98	75	87	81	97	79	92	76	93	75	91	74	87	65	101	74	90	62	98	73
24....	99	72	79	61	105	80	97	67	85	64	88	78	99	77	93	72	92	73	81	68	83	57	99	72	94	63	89	69
25....	83	67	82	60	98	72	85	60	83	66	79	74	89	72	85	71	90	65	82	65	77	52	76	64	93	59	86	68
26....	92	67	87	67	99	72	93	62	85	65	81	72	93	72	80	69	89	65	87	63	83	55	86	69	91	58	88	68
27....	98	74	84	66	104	74	99	68	90	70	84	76	95	72	88	70	90	67	87	67	85	62	96	71	98	66	92	72
28....	98	74	90	70	102	74	100	71	89	74	85	79	96	72	91	73	93	70	89	71	91	64	95	74	100	76	94	72
29....	98	76	94	70	104	75	100	67	84	74	88	80	97	72	92	73	90	70	88	71	86	65	96	73	94	66	94	71
30....	99	77	94	72	102	76	98	66	90	74	87	81	98	73	89	76	91	73	90	74	88	61	97	74	98	61	95	74
31....	101	77	97	68	103	76	103	68	92	76	87	81	99	74	92	75	96	68	91	73	86	66	97	73	97	68	95	74
Mns..	97.4	75.2	87.5	67.4	101.4	76.4	95.9	67.5	91.8	73.1	85.2	77.0	95.2	74.6	89.1	73.6	92.0	70.6	88.3	71.5	87.9	62.2	94.9	73.3	96.5	66.1	92.8	72.0

CLIMATOLOGICAL DATA FOR JULY, 1911.

DISTRICT No. 9, COLORADO VALLEY.

FREDERICK H. BRANDENBURG, District Editor.

Apart from western Wyoming, where the temperature and rainfall were close to the normal, the month in the basin of the Colorado was unusually cool, as well as the wettest July in a great many years; in Arizona it was the wettest of record. The persistence and regular distribution of the rainfall in Arizona and New Mexico were remarkable, and, while heavy downpours occurred in localities, the resulting damage was many times offset by benefits; this was especially true of the desert regions of Arizona and western New Mexico, where, at the close of the month, all water holes were full, and a luxuriant growth of grass covered the ranges. The persistency of rain in southwestern Colorado caused swollen streams in the San Juan Basin, and much damage was done to ranch property, besides causing a complete failure of the first crop of alfalfa and a deterioration in the condition of other field crops. The heavy rains of the 17th and 18th, on the watershed of Lightner Creek, northwest of Durango, caused the stream to overflow its banks, destroying some crops and washing out the bed of the railroad. In the adjoining county of San Juan, in New Mexico, heavy downpours caused freshets that damaged culverts and irrigation ditches in La Plata, San Juan, and Animas Valleys. On the 14th and 20th the San Juan River at Bloomfield, N. Mex., was the highest in 35 years.

TEMPERATURE.

The mean of the 143 stations reporting was 72.3°, or 2.8° below the normal. The mean for July, 1910, was 75.4°. By subdivisions the means and departures were: Western Wyoming, 59.2°, +0.4°; western Colorado, 61.8°, -3.1°; eastern Utah, 70.1°, -1.6°; western New Mexico, 70.9°, -2.5°; Arizona, 79.0°, -3.1°; and southeastern Nevada, 74.4°. The highest monthly mean was 93° at Parker, Ariz., and the lowest, 44.6°, at Corona, Colo. In the southern and central portions of the district the daily mean temperatures were below the normal nine-tenths of the month, and in the southwestern portion of Colorado there was only one day warmer than the normal. By subdivisions the extremes were: Western Wyoming, 88° at Eden and 27° at Daniel; western Colorado, 99° at Grand Valley and 26° at Fraser, Lay, and Pyramid; eastern Utah, 106° at Springdale and 24° at Scofield; western New Mexico, 101° at Deming and 40° at Aragon and Dulce; Arizona, 120° at Mohawk Summit and 28° at Flagstaff No. 2; southeastern Nevada, 104° and 43° at Caliente.

PRECIPITATION.

The average for the 194 stations reporting was 3.18 inches, or 1.40 inches above the normal, and 0.50 inch less than for August, 1909, the wettest summer month since the beginning of the records. The average for July, 1910, was 1.70 inches. The rainfall was unusually well distributed both geographically and throughout the

month, the last two days being the only days without rainfall over the greater part of the district. By watersheds the averages and departures were: Green, 1.03, +0.00; Grand, 3.13, +1.20; San Juan, 5.09, +4.43; Little Colorado, 3.68, +2.10; Gila, 3.74, +1.65; Mimbres, 5.08, +2.98; and Colorado, proper, 1.60, +0.81 inch. The greatest monthly amount was 8.58 inches at Chromo, Colo., and the least monthly amount, 0.03 inch, at San Rafael, Utah. Monthly amounts in excess of 4 inches were recorded at 22 stations in Colorado, 11 in New Mexico, and 31 in Arizona. Daily falls of 2 inches or more were noted at 2 stations in New Mexico and 18 stations in Arizona. By subdivisions the greatest and least monthly amounts were: Western Wyoming, 0.25 at Eden and 0.13 at Daniel; western Colorado, 8.58 at Chromo, and 0.84 at Grand Junction; eastern Utah, 3.95 at Monticello and 0.03 at San Rafael; western New Mexico, 7.13 at Deming and 2.46 at Lordsburg; and Arizona, 8.35 at Intake and 0.22 at Parker.

The average number of days with 0.01 inch or more precipitation was 4 in western Wyoming, 14 in western Colorado, 7 in eastern Utah, 12 in western New Mexico, 10 in Arizona, and 2 in southeastern Nevada; and for the district as a whole 11 days.

MISCELLANEOUS.

The sunshine was much below the average. Grand Junction reported 66, Durango 68, Flagstaff 55, Phoenix 74, and Yuma 85 per cent of the possible. In western Colorado the deficiency was about 11 per cent. In Arizona the deficiency ranged from 5 per cent at Yuma to 17 per cent at Flagstaff.

The relative humidity was unusually high for July in the central and southern parts of the district. Grand Junction reported 48, Durango 72, Flagstaff 73, Phoenix 53, and Yuma 51 per cent.

THE COLORADO RIVER.

The discharge of the Grand at Fruita was somewhat above the average of recent Julys; the highest stage, 9.2, was noted on the 7th, when the discharge was 23,200 second-feet. The lowest stage, 5.6 feet, occurred on the 31st. The discharge of the Green, which was not much affected by the rainfall, was somewhat below the average. The highest stage, 9.6 feet, occurred on the 1st, when the discharge was 20,100 second-feet. The San Juan carried an unusually large volume due to the heavy rainfall in southwestern Colorado and northwestern New Mexico. As a result of the downpours the river at Shiprock reached 13.2 feet on the 14th and 14.6 feet on the 20th, said to be the highest stages in 35 years. At Topock, on the trunk stream, the highest stage, 12 feet, occurred on the 1st, and the lowest, 6 feet, on the 17th-19th. At Yuma the average height was practically the same as the average for the last five years.

TABLE 1.—Climatological data for July, 1911. District No. 9, Colorado Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Wyoming.																				
Daniel.	Uinta.	6,740	12	56.6	+ 0.4	83	23†	27	1†	48	0.13	- 0.62	0.13	0	1	22	9	0	nw.	J. M. Van Dervort.
Eden.	Sweetwater.	6,577	2	61.8		88		30	9	53	0.25		0.08	0	7	18	13	0	w.	Eden Valley L. & I. Co.
Green River.	do.	6,083	6																	Geo. W. Maxom.
Merna.	Uinta.																			U. S. Forest Service.
Pinedale.	Fremont.	6,167	5																	Do.
Willow Creek Cabin.	do.	7,500	2																	Do.
Colorado.																				
Ashcroft.	Pitkin.	9,483	9	51.8	- 3.3	73	15	32	31	37	4.29	+ 2.52	0.72	0	22					Dan McArthur.
Bed Rock.	Montrose.																			W. B. Weybright.
Breckenridge.	Summit.	9,536	22	50.6	- 2.9	73	14	28	31	43	4.45	+ 2.22	1.42	0	13	0	19	9	nw.	Mrs. J. G. Thompson.
Buford.	Rio Blanca.										1.94		0.70	0	12	21	8	2	w.	Mrs. H. Genier.
Cascade.	San Juan.	8,900	4								7.14		1.77	0	25	5	9	17		San Juan W. & P. Co.
Cedaredge.	Delta.	6,175	13	67.8	- 2.3	89	11	47	8	40	1.06	+ 0.28	0.42	0	8	6	17	8		Harry A. Cobbett.
Chromo.	Archuleta.	7,500	5	60.2		82	9†	38	9†	44	8.58		1.90	0	19	8	15	7	sw.	Lawrence Nolan.
Cochetopa.	Saguache.	9,088	2								3.38		0.45	0	22	1	13	17	w.	Miss Bessie McDonough.
Collbran.	Mesa.	6,000	18	65.8	- 3.0	88	11	43	9	38	1.93	+ 0.81	0.78	0	8	9	17	5	sw.	A. A. Wood.
Columbine.	Routt.	8,766	1													8	23	0	sw.	Mrs. M. A. Caron.
Columbine Ranch.	Delta.	6,925	1								3.86		1.03	0	13	10	9	12	s.	Geo. W. Wade.
Corona.	Grand.	11,660	4	44.6		60	10	30	2†	26	4.46		0.98	0	15				w.	U. S. Weather Bureau.
Cortez.	Montezuma.	6,100		68.8		95 ^b	12	45 ^b	31	41	4.04		1.53	0	8	8 ^b	5 ^b	10 ^b	s.	Wm. C. Syrett.
Craig.	Routt.																			Joseph F. Haubrich.
Crawford (near).	Montrose.	6,600	1	64.4		85	11	45	9	35	2.47		0.86	0	12	15	8	8		C. W. Roe.
Crested Butte.	Gunnison.	8,867	1	54.5		79	11	30	31	46	5.32		1.03	0	15	4	17	10		Charles L. Ross.
Delta.	Delta.	4,965	21	71.4	- 2.9	98	11	45	10†	51	1.53	+ 0.70	0.49	0	7	13	10	8		E. M. Getts.
Dillon.	Summit.	8,800	1	52.7		75	14	28	31	43	3.23		0.80	0	7	14	13	4	n.	Harry T. Hamilton.
Durango.	La Plata.	6,534	16	64.7	- 4.0	87	10	46	31	37	5.21	+ 3.66	0.92	0	20	9	17	5	nw.	U. S. Weather Bureau.
Eureka.	San Juan.	10,000	4								4.92		0.99	0	19	6	6	19		San Juan W. & P. Co.
Fraser.	Grand.	8,560	2	51.4		75	12	26	10	47	3.33		1.04	0	13	0	12	19	n.	L. D. C. Gaskill.
Fruita.	Mesa.	4,410	12	72.9	- 2.3	98	11	38	9	54	1.37	+ 0.53	1.31	0	3	7	17	7		J. B. Willson.
Gladstone.	San Juan.	10,400	4								5.28		1.67	0	23	0	19	12	ne.	San Juan W. & P. Co.
Glenwood Springs (near).	Garfield.	5,823	13	64.8	- 3.0	91	17	36	31	49	2.93	+ 1.82	0.85	0	9	21	5	5	w.	E. A. O'Neill.
Grand Junction.	Mesa.	4,608	20	74.8	- 4.4	96	10	54	9	36	0.84	+ 0.34	0.40	0	7	10	14	7	se.	U. S. Weather Bureau.
Grandlake.	Grand.	8,153	3								2.70		1.10	0	5	11	18	2	w.	Mrs. Belle Kauffman.
Grand Valley.	Garfield.	5,089	19	70.2	- 2.6	99	11	39	8†	55	1.69	+ 0.80	0.63	0	9	5	20	6		David Evans.
Gunnison.	Gunnison.	7,670	18	60.6	- 0.6	87	11	35	5	46	4.21	+ 3.02	0.68	0	18	11	17	3		Clarence Adams.
Horseshoe.	Montrose.	8,700	1													8	16	7	sw.	Lawrence J. Finch.
Ironton.	Ouray.	10,000	1								5.81		1.50	0	26	1	26	4	ne.	P. H. Foley.
Lake City.	Hinsdale.	8,686	6	58.1		79	10	40	4†	36	3.01		0.41	0	27	3	13	15	s.	J. F. Maurer.
Lay.	Routt.	6,190	17	63.2	- 3.6	90	12	26	9	56	1.41	+ 0.53	0.47	0	11	9	12	10	sw.	A. G. Wallihan.
Mancos.	Montezuma.	6,960	12	63.0	- 3.4	83	9†	43	31	37	5.39	+ 4.08	1.34	0	18	5	20	6	w.	B. M. Krumpantzky.
Marble.	Gunnison.	7,951	2	57.4		81	11	33	9	41	4.14		0.99	0	15	12	10	9	ne.	F. E. Morse.
Marshall Pass.	Saguache.	10,846	8								5.98		1.10	0	18	6	12	13	w.	Wm. D. Lillard.
Meeker (near).	Rio Blanca.	6,182	19	61.2	- 4.2	87	20	31	9	47	0.97	- 0.59	0.42	0	7	11	13	7		T. Baker.
Montrose.	Montrose.	5,811	22	68.4	- 1.4	92	15	47	9	41	2.10	+ 1.32	0.60	0	14	11	11	9		U. S. Reclamation Service.
Nast.	Pitkin.	7,953	1	54.8		76	10†	32	9	42	3.22		0.67	0	10	10	10	5	w.	Arthur Hanthorn.
Pagoda.	Routt.	6,500	20																	Mrs. J. W. Scott.
Pagosa Springs.	Archuleta.	7,108	4	61.5		84	9	36	31	45	5.84		1.50	0	22	5	16	10	sw.	E. T. Walker.
Palisades.	Mesa.	4,729		75.0		96	10	56	9	36	1.26		0.98	0	4	13	11	7	sw.	G. S. Herbolshelmer.
Paonia.	Delta.	5,694	16	67.9	- 5.1	90	11	48	9	38	1.51	+ 0.57	0.48	0	8	2	26	3	sw.	J. M. Underwood.
Parshall.	Grand.		2								2.52		0.60	0	7					F. A. Field.
Pitkin.	Gunnison.	9,500	2								4.47		0.77	0	17	6	19	6		Mrs. Maggie Camman.
Pyramid.	Rio Blanca.			59.4		89 ^b	9	26 ^b	9	60 ^b	0.86		0.30	0	10	10	18	3	w.	E. E. Egly.
Rangely.	do.	5,060	12																	Mrs. C. P. Hill.
Redcliff.	Eagle.	8,695	18								3.96		0.63	0	14	12	5	14		Dorothea Greiner.
Rico.	Dolores.	8,824	9								7.10		0.84	0	25	5	7	19	sw.	Clinton B. Smith.
River Portal.	Montrose.	6,570	5	65.4		89	10†	42	9	45	2.55		0.45	0	14	9	4	18		U. S. Reclamation Service.
Sapinero (near).	Gunnison.	8,125	8	57.0		77	10	35	31	38	2.71		0.55	0	13	13	12	6	w.	W. F. Irving.
Shoshone.	Garfield.	6,110	1	68.8		95	14	49	9	39	1.86		0.62	0	15	6	9	16		Central Colorado Power Co.
Silverton (near).	San Juan.	9,400	4	52.9		78	28	29	3	42	4.83		1.30	0	21	5	9	17	sw.	San Juan W. & P. Co.
Spruce Lodge.	Grand.	9,600	3								4.97		1.52	0	20					H. J. Willis.
Steamboat Springs.	Routt.	6,683	8	59.4		88	12	27	9	53	2.12		0.65	0	7	25	2	4		M. Elliot Houston.
Tacoma.	La Plata.	7,300	4								5.07		1.02	0	19	1	7	23		San Juan W. & P. Co.
Telluride.	San Miguel.			57.0		79	10	33	30	44	5.90		1.23	0	26	7	11	13	ne.	John T. March.
Terminal Dam.	La Plata.	8,300	4								5.94		1.30	0	20	4	24	3	s.	San Juan W. & P. Co.
Terrill's Ranch.	Mesa.	7,000									2.33		0.65	0	8	5	24	2	ne.	A. F. Terrill.
Uncompahgre Plateau.	Montrose.	8,400	1								4.96		1.43	0	13	6	23	2	sw.	Martin Esser.
Yampa (near).	Routt.	8,000	2								2.67		0.42	0	10	4	22	5	nw.	Percy A. Hughes.
Utah.																				
Aneth.	San Juan.	4,800	8	74.4		96	9†	53	4	38	2.40		0.55	0	8	16	13	2		H. R. Antes.
Bluff.	do.			76.6		100	9†	57	5†	42	2.21		1.10	0	9	2	5	24	e.	G. D. James.
Castle Dale.	Emery.	5,500	12	66.4	- 2.4	91	10	44	1†	40	1.72	+ 1.14	0.55	0	6	13	18	0		James Jeffs.
Cisco.	Grand.	4,447																		John J. Anderson.
Dragon.	Uinta.			68.8		93	15	40	9†	50	1.10		0.55	0	8	22	4	5		Gilson Asphaltum Co.
Duchesne.	Wasatch.		5	66.5		91	15	36	9	49	0.63		0.26	0	5	8	20	3		M. M. Smith.
Elkhorn.	Uinta.	6,657	1																	

TABLE 1.—Climatological data for July, 1911. District No. 9—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Utah—Continued.																				
Orderville.....	Kane.....	6,660	1							1.34		0.40	0	8					F. A. Porter.	
Pine Valley.....	Washington.....	6,000								2.16		1.10	0	5					Mason Gardner.	
Price.....	Carbon.....	5,557				93	11†	46	1	41	1.32	0.56	0	4	25	1	5	se.	R. H. Thompson.	
Ranch.....	Kane.....	6,700	9	62.6		87	10†	38	4	42	0.90	0.18	0	9	2	21	8	w.	J. W. Seaman.	
San Rafael.....	Emery.....									0.03	0.02	0	2	11	7	13	se.	W. C. Foy.		
St. George.....	Washington.....	2,880	21	80.8	- 1.4	104	4†	52	3	47	2.01	+ 1.04	1.22	0	5	5	13	13	A. B. Ballantyne.	
Scotfield.....	Carbon.....	7,625	1	57.9		86	13	24	9	57	1.31	0.41	0	11	17	6	8	s.	B. Newren.	
Springdale.....	Washington.....	3,500	3	81.3		106	10	60	4†	40	1.31	0.87	0	5	17	2	12		Hattie Flanagan.	
Sunnyside.....	Carbon.....	5,280	6							1.30	0.50	0	9						Henry Cullum.	
Teasdale.....	Wayne.....	7,000	3	64.5		85	16	46	2†	31	0.71	0.20	0	8	9	1	21		Josiah Shurtz.	
Thompsons.....	Grand.....	5,150		74.6		96	16	53	2†	41	0.94	0.24	0	6	9	18	4	sw.	A. J. Starmont.	
Tropic.....	Garfield.....	7,000	13	67.2	± 0.0	90	9†	45	4†	37	1.73	+ 0.84	0.72	0	5	3	25	3	sw.	E. P. Bolton.
Trout Creek Ranger.....	Uinta.....	9,200	1							1.87	0.45	0	13	9	18	4			Forest Supervisor.	
Vernal.....	do.....	5,050	15	68.6	- 3.1	95	12	36	9	50	0.28	- 0.46	0.16	0	5	23	8	0	S. P. Trim.	
Woodside.....	Emery.....	4,645		74.2		100	11	44	9	53	0.70		0.48	0	4	20	0	11	s.	D. P. Adams.
New Mexico.																				
Alma.....	Socorro.....	5,500	15	73.6	- 0.9	97	31	51	31	46	3.50	+ 1.08	0.70	0	12	2	19	10	sw.	M. A. Balke.
Aragon.....	do.....	5,856	4	61.8		87	30†	40	24†	47	3.70	0.70	0	10	6	22	3		John R. Milligan.	
Artec.....	San Juan.....	5,590	11								4.22	+ 3.19	0.83	0	12	7	15	9	e.	Dr. T. J. West.
Blackrock.....	McKinley.....	6,500	3																R. J. Bauman.	
Bloomfield.....	San Juan.....	5,500	16	72.4	- 2.3	99	9	49	31	46	4.01	+ 3.02	0.88	0	14	5	21	5	se.	Fred LeClerc.
Canbray.....	Luna.....	4,215	12								3.80	+ 2.34	1.10	0	11	5	18	8	w.	Agent Southern Pacific R. R.
Cliff.....	Grant.....	4,470	12																W. C. Belden.	
Columbus.....	Luna.....	4,054	2			98	31	60	25		5.19	1.68	0	11	9	11	11	se.	Agent E. P. & S. W. R. R.	
Deming.....	do.....	4,333	34	76.7		101	3	50	11†	42	7.13	+ 5.06	2.35	0	12	0	6	25	w.	Agent Southern Pacific R. R.
Dulce.....	Rio Arriba.....	6,756	4	65.4	- 0.3	87	10	40	31	43	5.64	+ 2.88	1.53	0	21	4	13	14	w.	G. H. Blakeslee.
Fort Bayard.....	Grant.....	6,152	36	70.7	- 2.0	90	5	54	25†	35	4.59	+ 1.55	1.74	0	15	10	11	10	nw.	U. S. General Hospital.
Fort Wingate.....	McKinley.....	6,997	47											0	15	10	11	10		Medical Corps, U. S. Army.
Fruitland.....	San Juan.....	4,800	18	71.2	- 3.5	92	9†	52	9†	40	4.50	+ 3.66	1.30	0	14	10	18	3	se.	Cyril J. Collier.
Gage.....	Luna.....	4,486	4																Agent Southern Pacific R. R.	
Gila Planting Station.....	Grant.....	6,475		67.9		87	31	52	22	30	3.63	1.76	0	11	8	17	6	se.	U. S. Forest Service.	
Hachita.....	do.....	4,504	2								4.74	1.86	0	14	6	20	5	e.	Agent E. P. & S. W. R. R.	
Haynes.....	Rio Arriba.....	6,600	1	72.6		91	11	60	4†	26	5.64	1.42	0	10	21	9	1	nw.	Dr. John R. Haynes.	
Hermasues.....	Luna.....	4,451	2								5.15	2.10	0	7	5	13	13	w.	Agent E. P. & S. W. R. R.	
Lordsburg.....	Grant.....	4,245	11	76.8	- 6.0	100	30†	59	25	36	2.46	+ 0.69	0.93	0	9	4	20	7	sw.	Agent Southern Pacific R. R.
Luna.....	Socorro.....	7,300	6																C. B. Martin.	
Mimbres.....	Grant.....	5,007	6								6.23	1.70	0	16	6	22	3	w.	Charles Dennis.	
Pinos Altos.....	do.....	8,000																	O. L. Scott.	
Pratt.....	do.....	4,415	2								2.76	0.85	0	10	14	0	17		Agent E. P. & S. W. R. R.	
Putnam.....	San Juan.....	6,200																	D. Lee Thompson.	
Redrock.....	Grant.....	4,150	6								3.00	0.86	0	8	7	16	8		Robert H. Woods.	
Rodeo.....	do.....	4,118	2								3.47	1.55	0	5	7	13	11		Agent E. P. & S. W. R. R.	
Arizona.																				
Allalres Ranch.....	Cochise.....	4,184	15								2.13	- 0.46	0.69	0	8	7	19	5	w.	Thomas Allaire.
Alpine.....	Apache.....	7,500																	U. S. Forest Service.	
Artec.....	Yuma.....	492	12	92.6	- 2.7	115	30†	72	1†	42	0.95	+ 0.73	0.34	0	5	19	4	8	w.	Agent Southern Pacific Co.
Benson.....	Cochise.....	3,523	31	77.4	- 7.7	100	31	60	1	38	3.80	+ 1.75	0.80	0	17	9	13	9	e.	Do.
Bisbee.....	do.....	5,500	21	71.5	- 3.8	90	30†	56	2†	25	2.38	+ 1.16	0.64	0	12	9	6	16	e.	Rev. J. G. Pritchard.
Bowie.....	do.....	3,756	35	76.0	- 4.0	104	31	50	10	46	1.27	- 0.43	0.83	0	3	5	19	7	se.	Agent Southern Pacific Co.
Buckeye.....	Maricopa.....	980	20	88.4	+ 1.0	113	31	66	2	43	3.73	+ 2.50	2.00	0	6	22	7	2	sw.	H. E. Kell.
Canille.....	Santa Cruz.....	5,225	2								4.71	1.05	0	15	0	24	7	2	sw.	R. A. Rodgers.
Casa Grande.....	Pinal.....	1,396	29	90.2	- 2.9	111	27†	63	21	45	1.30	+ 0.54	1.30	0	1	11	12	8	sw.	Agent Southern Pacific Co.
Casa Grande Ruins.....	do.....	1,422	3	86.8		110	31	66	31	44	3.23	1.33	0	10	8	7	16		w.	F. Pinkley.
Cavecreek.....	Maricopa.....	1,520	4	82.2		106	13†	62	2†	44	6.24	2.00	0	11	10	19	2		n.	E. A. Howard.
Chin Lee.....	Apache.....	6,090	3	70.8		91	31	51	4†	35	3.59	0.72	0	15	5	5	21			Fr. L. Ostermann, O. F. M.
Chilcharson Mill.....	Graham.....	8,000	5	62.7		79	30	50	24	25	5.78	1.30	0	11	7	18	6			H. R. Chlarson.
Clifton.....	Greenlee.....	3,584	21	81.9		103	30†	64	25	32	4.19	+ 2.33	1.05	0	14	7	20	4	sw.	P. Reisinger.
Cline.....	Gila.....	2,300	11	80.5	- 3.9	100	15†	61	31	39	5.07	+ 3.18	2.00	0	10	5	19	7	sw.	W. M. Clanton.
Cochise.....	Cochise.....	4,219	13	77.2	- 4.2	101	31	55	3	39	2.21	+ 0.16	0.85	0	6	19	0	12		Agent Southern Pacific Co.
Columbia.....	Yavapai.....	1,900	9	84.9		112	11	59	6	46	3.76	1.00	0	9	7	3	21		sw.	M. J. Nolan.
Courtland.....	Cochise.....	4,543	2								3.38	1.30	0	12	3	15	13		sw.	Agent E. P. & S. W. Co.
Dos Cabezas.....	do.....	5,250	3	75.8		101	5	49	2	45	4.53	1.20	0	9	12	13	6		w.	N. Erickson.
Douglas.....	do.....	3,930	8	77.6		103	30†	54	1	44	2.90	0.48	0	19	8	12	11			Dr. F. T. Wright.
Dudleyville.....	Pinal.....	2,204	20	79.2	+ 1.4	100	31	64	1†	36	2.19	+ 0.69	0.84	0	14	4	22	5	sw.	G. F. Cook.
Fairbank.....	Cochise.....	3,862	2								2.50	0.80	0	8	1	23	7		sw.	Agent E. P. & S. W. Co.
Flagstaff.....	Cocconino.....	6,907	19	62.6	- 2.4	84	9	44	5	37	5.53	+ 3.74	1.08	0	19	6	11	14	nw.	U. S. Weather Bureau.
Flagstaff (1).....	do.....	7,452	4																C. C. Moers.	
Flagstaff (2).....	do.....	7,500	1	59.7		83	9	28	4†	50	5.44	1.66	0	18	3	11	17		sw.	U. S. Forest Service.
Florence.....	Pinal.....	1,504	12	76.6	- 11.7	110	31	49	1	48	2.54	+ 1.06	1.02	0	8	7	22	2	sw.	Agent Ariz. Eastern R.R.Co.
Fort Apache.....	Navajo.....	5,200	39	70.4	- 3.6	92	19	45	4	43	4.88	+ 1.89	0.51	0	19	10	15	6	sw.	Post Surgeon, U. S. Army.
Fort Huachuca.....	Cochise.....	5,100	26	75.1	+ 2.1	99	30†	56	2	37	2.15	- 1.43	1.10	0	4	13	0	18	se.	Do.
Gilabend.....	Maricopa.....	737	21	91.0	- 3.0	117	6†	70	2†	40	2.27	+ 1.49	1.46	0	5	20	1	10	w.	Agent Southern Pacific Co.
Globe.....</																				

TABLE 1.—Climatological data for July, 1911. District No. 9—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Arizona—Continued.																				
Natural Bridge.....	Gila.....	4,990	22								6.83	+ 4.33	2.00	0	13	5	10	16	sw.	D. G. Goodfellow.
Oracle.....	Pinal.....	4,500	18																	W. H. Winters.
Osborn.....	Cochise.....	4,676	2								2.88		1.14	0	9	6	17	8	w.	Agent E. P. & S. W. Co.
Paradise.....	do.....	5,436	5	68.9	- 0.9	92	31	49	28	40	5.56	- 0.15	2.08	0	6	0	23	8	sw.	J. C. Hancock.
Parker.....	Yuma.....	345	17	93.0		118	15	70	1†	42	0.22		0.15	0	2	24	6	1		M. A. Israel, M. D.
Payson.....	Gila.....	5,550	3	69.8		90	31	50	31	40	4.83		2.32	0	12	6	0	25		M. McDonald.
Phoenix.....	Maricopa.....	1,108	16	86.0	- 4.4	109	31	65	2	36	6.47	+ 5.40	4.98	0	9	9	19	3	e.	U. S. Weather Bureau.
Phoenix ¹	do.....	1,092	20	85.5	- 7.7	110	31	64	2	45	6.13	+ 4.91	3.80	0	7	13	12	6	w.	G. Acuff.
Phoenix ²	do.....	1,189	2	86.6		110	30	67	17	38	5.26		2.10	0	6	16	9	6	sw.	Horne & Armstrong.
Pinal Ranch.....	Pinal.....	4,520	17								5.34	+ 2.63	1.49	0	10	14	7	10		Irion & Craig.
Pinto.....	Apache.....	5,660	7								2.82		0.52	0	9	13	17	1	sw.	Mrs. C. F. Henning.
Prescott.....	Yavapai.....	5,320	44	69.6	- 3.9	95	6	51	23	43	3.76	+ 0.86	1.02	0	11	8	9	14		J. W. Flinn, M. D.
Quartzsite.....	Yuma.....	800	3	91.8		115	31	69	23	45	2.09		1.00	0	6	15	13	3	sw.	W. E. Scott.
Redrock.....	Pinal.....	1,864	3	87.7		110	14†	64	1	40	0.73		0.25	0	5	5	26	0	w.	W. J. Crowell.
Roosevelt.....	Gila.....	2,175	7	85.0		104	31	67	22	31	5.18		1.76	0	10	7	17	7		U. S. Reclamation Service.
Sacaton.....	Pinal.....	1,280	4	86.0		109	14†	57	2	42	4.11		1.40	0	9	13	13	5		E. W. Hudson.
St. Johns.....	Apache.....	5,650	8	70.4		94	16	49	5	41	3.32		1.20	0	10	7	19	5	w.	A. Shreeve.
St. Michaels.....	do.....	6,950	24	66.8	- 2.4	93	29	46	31	43	4.17	+ 2.10	1.40	0	16	4	18	9	sw.	Rev. A. Weber, O. F. M.
Salome.....	Yuma.....	1,875	4	82.8		107	31	56	16	49	1.39		0.47	0	7	8	18	5	s.	Mrs. M. B. Swartz.
San Carlos.....	Gila.....	2,456	29	80.6	- 5.5	108	30	57	17†	51	2.99	- 1.35	1.23	0	5	3	24	4	sw.	F. S. Thomas.
San Simon.....	Cochise.....	3,009	27																	Agent Southern Pacific Co.
Seligman.....	Yavapai.....	5,219	6	72.3		98	9†	47	4	50	2.15		1.05	0	9	6	22	3	sw.	Lib. A. T. & S. F. R. R. Co.
Sentinel.....	Maricopa.....	685	12	89.8	- 5.0	114	14	66	22†	39	3.54	+ 2.86	2.53	0	7	16	13	2		Agent Southern Pacific Co.
Silverbell.....	Pima.....	2,650	6	83.4		106	31	60	1†	29	3.64		2.25	0	6	7	16	8		Imperial Copper Co.
Snowflake.....	Navajo.....	5,644	1	70.0		92	9	52	31	38	5.89		1.50	0	13	3	19	9	sw.	W. J. Flake.
Springerville.....	Apache.....	6,862		64.0		84	8†	45	25	37	3.96		0.97	0	14	9	10	12	s.	U. S. Forest Service.
Supai.....	Coconino.....	3,200	5	84.4		107	10	62	25	36	6.77		0.55	0	4	23	0	8		A. H. Symons.
Tempe.....	Maricopa.....	1,165	7	85.6		109	31	67	2†	39	6.33		2.10	0	10	8	21	2	e.	F. H. Simmons.
Thatcher.....	Graham.....	2,800	8	80.0		103	30†	59	31	44	3.40		2.00	0	6	8	15	8		Prof. J. H. Larson.
Tombstone.....	Cochise.....	4,550	17	76.8	+ 1.5	101	30	58	1†	39	2.13	- 0.94	0.68	0	10	5	20	6		F. N. Walcott.
Truxton.....	Mohave.....	3,997	2	80.8		103	15†	62	4	36	0.77		0.15	0	10	9	17	5	s.	G. A. Dennis.
Tuba.....	Coconino.....	4,500	12	74.0	- 3.6	95	9†	50	2	43	1.90	- 0.24	0.52	0	8	12	14	5	ne.	H. P. Marble.
Tucson.....	Pima.....	2,390	32	83.6	- 3.1	106	15†	49	3	44	1.57	- 0.53	0.52	0	8	0	29	2	nw.	University of Arizona.
Tucson (1).....	do.....	2,380	3	82.0		106	13†	61	28	42	2.16		0.72	0	10	5	22	4	nw.	J. M. Robe.
Tucson (2).....	do.....	2,526		83.5		106	30	64	3	42	1.43		0.50	0	15	8	6	17	w.	U. S. Coast & Geod. Surv.
Vail.....	do.....	3,421	12	83.0	- 2.7	104	31	60	26	41	2.59	+ 1.43	0.90	0	4	10	17	4	sw.	Agent Southern Pacific Co.
Walnut Grove.....	Yavapai.....	3,649	21								4.61	+ 2.75	1.20	0	13	6	19	6		J. O. Carter.
Wickenburg.....	Maricopa.....	2,072	13	85.4	- 0.3	108	12	60	16	42	3.49	+ 2.39	1.25	0	4	8	18	5	sw.	Agent S. F. P. & P. Ry.
Willcox.....	Cochise.....	4,164	29	72.4	- 9.4	100	31	40	10†	58	3.21	+ 1.42	1.45	0	5	16	9	6	sw.	Agent Southern Pacific Co.
Williams.....	Coconino.....	6,750	11	63.3	- 4.7	86	9	43	5	39	5.52	+ 2.59	1.30	0	19	6	17	8	sw.	E. J. Nordyke.
Winslow.....	Navajo.....	4,853	7																	J. F. Bauer.
Yuma.....	Yuma.....	141	32	90.2	- 0.7	115	31	69	4	41	0.42	+ 0.30	0.37	0	3	25	4	2	sw.	U. S. Weather Bureau.
Yuma.....	do.....	150	4	85.8		112	30	62	4	46	0.44		0.36	0	2	17	0	14	sw.	A. L. Crane.
Nevada.																				
Calliente.....	Lincoln.....	4,407	1	74.4		104	11†	43	31	49	1.09		0.58	0	2	17	8	6	se.	Salt Lake Route.
Logan.....	Clark.....	1,700	4																	R. M. Filcher.

* , b , c , etc. , indicate , respectively , 1 , 2 , 3 , etc. , days missing from the record.

** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for July, 1911. District No. 9, Colorado Valley.

Stations.	Watershed.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Wyoming.																																		
Daniel.	Green.													T.							.13												0.13	
Eden.	do.	.01							.02						.01			.03			.06		.08				T.	.04	T.		T.	T.	0.25	
Green River.	do.																																	
Merna.	do.																																	
Pinedale.	do.																																	
Willow Creek Cabin.	do.																																	
Colorado.																																		
Ashcroft.	Grand.	.15	.72	.35	.08	.23	.33	.21	.13				.02	.08		T.	.09	.27	.33	.11	.03	.33	.35				.21	.04	.01		.12	.10	4.2	
Bed Rock.	Dolores.																																	
Breckenridge.	Grand.	.27	.78	.22	.09	1.42	.45	.08								T.		.25	.10	T.		.42	.13			.04	T.			T.	.20		4.45	
Buford.	White.	.29	.05	.05	.05	.05	T.	.16	.05									.13	.12		.15	.70			.15	.04					T.		1.94	
Cascade.	San Juan.	.20	.65	.45	.07	T.	.49	.44	.02			.03	.22	1.77	.03	.07	.10	.07	.14	.70	.02	.35	.06	.05	.04	1.05	.05	.05	.02	T.			7.14	
Cedaredge.	Gunnison.		.09	.11									.04	.10			.20	.05				.42											1.06	
Chromo.	San Juan.	1.90	T.	.20	.25			.10	.08				.20	.55	.40	1.46	.03		.13	1.23	.60	.75	.10		.25	.04	.21	.10	T.			8.58		
Cochetopa.	Gunnison.	.03	.38	.02	.45	.06	.35	.03	.01			.02	T.	.03	.18	.17		.05	.15	.20	.04	.44	.08		.19	.36	.09			.05			3.38	
Collbran.	Grand.	.13	.01	.23		T.	.14	T.	.02							.06	T.	T.	.56			T.	.78										1.93	
Columbine.	Yampa.																																	
Columbine Ranch.	Gunnison.	.40	.80	.23	.03			.09					.17			.15	.30	.15	.20	.09	1.03	.22						T.					3.86	
Corona.	Grand.	.98	.51	.74	.82	.35	.08	.09					.17		.17	.15	.12	.05	.12		.08	.09										.11	4.46	
Cortez.	San Juan.		.30			T.						T.		.06	.16		1.17			1.53	.49	.17	T.	T.		.16						4.04		
Craig.	Yampa.																																	
Crawford (near).	Gunnison.	.05	.17	.41				.03	.04				.47			T.	T.	.10	.16		.27		.86			.03					.02		2.47	
Crested Butte.	do.	.90	.51	.15	.32	1.03							.38			T.	T.	.10	.16		.21	.25	.28	.60			.15		T.	.18	.10	5.32		
Delta.	do.	.28	.04	.14	.16								.26								.16		.49										1.53	
Dillon.	Grand.	.80	.60	.70	.50			T.	.13							.40						.10		T.							T.	T.	3.23	
Durango.	San Juan.	.39	.46	.11	.03	.10	.08				.03	.36	.61	.09	T.	.21	.36	.60	.35	.03	.47	.12		.67	.08	.06							5.21	
Eureka.	do.	.99	.13	T.	.08	T.		T.	T.	.09	.14	.22	.84	T.		.07	.14		.06	.03		.05	.10		.19	.14	.17	.09	.14	.08	.15	T.	4.92	
Fraser.	Grand.	.94	.39	.08	1.04	.15	.16									.07	.14		.06	.03		.05	.10								.10	.02	3.33	
Fruita.	do.	.01		.05				T.	T.							T.	T.	T.	T.		T.	1.31				T.	T.						1.37	
Gladstone.	San Juan.	.54	.30	.26	.10	T.	.02	T.	T.	T.	.02	T.	.14	1.67		.10	T.	.33	.12	.12	.52	.18	.05	.11	.24	T.	.23	.04	.07	.04	.09	.04	T.	5.28
Glenwood Springs (near).	Grand.		.70	.30	.30					.25										.05		.85					T.	.05	T.				2.93	
Grand Junction.	do.	T.	T.	.26	T.	T.	.01									T.	T.	.01	.03		.13	.39				T.	.01	T.			T.		0.84	
Grandlake.	do.	T.	1.10			T.	T.	.40	T.			T.	.30		.50			T.	T.			.40					T.	.02	T.	T.	T.		2.70	
Grand Valley.	do.	T.	.04	.36	.01	T.	T.	T.	T.							T.	T.	.14	T.	.16	T.		.63				T.	.02	.09	T.	T.	.24	1.69	
Gunnison.	Gunnison.	.03	.55	.60	.03	.35	.68	.49	.02					.05			.03	.38	.12	.32	.24				.05	.10	.15		.02	T.			4.21	
Horsefly.	do.																																	
Ironton.	do.	.30	.38	.25	.10	.11	.06	.03	.01				.04	1.50	.06	.01	.17	.16	.45	.43	.27	.12	.10	.27	.05	.18	.29	.11		.28	.08		5.81	
Lake City.	do.	.11	.29	.05	.22	.16	.18	.09	.35			.01	.01	.41	.01	.04	.10	.19	.08	.25	.15	.07	.22	.09		.02	.03	.04	.03	.09	.02		3.01	
Lay.	Yampa.	.04	.03	.03	.13		T.	T.					.39		.02	.47	.04	.09				.12				T.	T.	T.	T.	T.	.05		1.41	
Mancos.	San Juan.	.47	.07	.17	.02			.09				.08	.21	.05	.09		.31		.55	.60	.03	.17	.04	T.	.03	1.34	T.	T.	T.	T.	.07		5.39	
Marble.	Grand.	.55	.35	.06	.50	.27		.28				.14				.09	.05	.28		.14	.99	.11			.28	.05							4.14	
Marshall Pass.	Gunnison.	1.10	.15	.12	.03	.30	.45			.25		.31	.23	.62	.20	.12	.40	.55		.40					.35	.30							5.98	
Meeker (near).	White.	.42		T.	T.												.14	.03		.02	.22												0.97	
Montrose.	Gunnison.	.18	.63	.15		.67		.12	.01				.60	.01		.02		.04	.27	.02	.09	.07			.01								2.10	
Nast.	Grand.																.25	.04	.24		.33	.33			.32								3.22	
Pagoda.	Yampa.																																	
Pagosa Springs.	San Juan.	.50	.93	.05	.14		.02	.02	.02		T.	T.	.20	.50		.03		.18	.40	1.50	.22	.04	.07	.15	.21		.12	.05	.42	.07			5.84	
Pallisades.	Grand.		.21				.01						.06									.98											1.26	
Paonia.	Gunnison.	.04	.09	.48			T.	T.	T.				.33			.03	T.		.10			.39					.05	T.	T.				1.51	
Parshall.	Grand.	.40	.26	.31	.35								.55			.05						.60											2.52	
Pitkin.	Gunnison.	.06	.77	.47	T.	.05		.05				.07	.15	.20		.47	.12	.67	.07	.15	.30	.34			T.	.30	.23						4.47	
Pyramid.	Yampa.	.29	.02			.04	T.		T.				.07			.02	.03	.01				.01	.30			T.	.07						0.86	
Rangely.	White.																																	
Redcliff.	Grand.	.46	.63	T.	T.	.55	.23	.05				.40	.32			.09		.09		.11	.33	.27		.20	.22	.10							3.96	
Rico.	Dolores.	.38	.32	.38	.40	.08					.48	.38	.43	.08	.19	.06	.45	.15	.65	.32	.84	.11	.10	.06	.18	.15	.05	.34	.15	.31			7.10	
Rifle.	Grand.																																	
River Portal.	Gunnison.	.20	.18	.45	.08	.14		.12					.21	.09			.09	.16	.34	.01		.41	.07										2.55	
Sapinero (near).	do.	.11	.55</																															

TABLE 2.—Daily precipitation for July, 1911. District No. 9—Continued.

Stations.	Watershed.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Utah—Continued.																																	
St. George	Colorado												.23			.05		.33	.18	1.22				.01									2.01
San Rafael	Green																								.02								0.03
Scofield	do			T.				.01										.01	.22	.01	.41	.33				.01	.17	.10			.02		1.31
Springdale	Colorado			.10															.87	.12		.12		.10								1.31	
Sunnyside	Green			.14	.03									.07				.05	.07	.50			.17			.24	.03	T.				1.30	
Teasdale	Colorado						.02										.03			.10		.13	.20		.15		.03	.05				0.71	
Thompsons	Green			.04		.19	T.	T.														.12	.16		.24		T.	.19				0.94	
Tropic	Colorado			T.		T.		.13							.24				.72	T.	T.		T.		.37		T.	.27	T.			1.73	
Troutcreek Ranger	Green	.15	.10					.09							.15			.10	.20	.05	.01	.45			T.	.25	.22	.05			.05	1.87	
Vernal	do								.03								T.			.16			.02	.05								0.28	
Woodside	do																	.02					.19		.01		.48					0.70	
New Mexico.																																	
Alma	Gila	.57		.12	.03	T.	T.	T.		T.	.50	.70		T.		.09	T.	.17		.20					.68	.32	.10	.02				3.50	
Aragon	do	.55		.20			T.	.15		T.	.20	.25	.10				.50	.50		T.						.70	.55					3.70	
Aztec	San Juan	.68	.41				.02				.05	.72		.04			.60	T.	.04	.54		.83		.01	.28		T.					4.22	
Blackrock	L. Colorado																															4.01	
Bloomfield	San Juan	.88	.38	.08	T.						.01	.19	.72	.12	.01	T.	.43	.06	.21	.51	.01	.40	T.		T.		T.					3.80	
Cambray	Mimbres	1.10	.15	.44	.15	.05	T.			.59	.08	.01													.21	.80							
Cliff	Gila																															5.19	
Columbus	do		.02		.28	1.40	1.07	.71	.19	.77	.10						.14			.38							.13					7.13	
Deming	Mimbres	T.		.34		.95	.60	.36		1.16	1.19								.36	.05					*	.85	.70	.57				5.64	
Dulce	San Juan	.71	.18	.12		.01	.06	.01	.01				.44	1.53	.23	.01	T.	.01		1.07	.12	.55	.01		.35	.09	.02	.03	.08	T.		4.59	
Fort Bayard	Mimbres	.39		.06	T.	.13	.80	T.		.02	1.74	.06			.09	.34	T.	.20		.04	T.	.22			.41	T.	.05	.04	T.				
Fort Wingate	L. Colorado																																
Fruitland	San Juan	.50	.30	.20			1.30				.07		.15	.60	.11	.05	.15	.02	.60	.05	T.					.40		T.				4.50	
Gage	Mimbres																																
Gila Planting Station	do	.22		T.	T.	T.	.13	.36	T.	.36	1.76	T.		T.	.09	.04	T.	.19		.02	T.	T.			.40	.06			T.	T.		3.63	
Hachita	Gila	.43		.45		.12	.10	.05	T.	1.86	.12				.04			.53		.12	.04				.20	.05	T.	.63				4.74	
Haynes	San Juan	.07	.88				.16				.20		.15	.62			1.12										.74					5.64	
Hermans	Gila				.25	1.25		1.10			2.10	.15			.20										.10							5.15	
Lordsburg	do			.22				.05		.93	.22	.15								.65	.08	T.						.12				2.46	
Luna	do																																
Mimbres	Mimbres	.59		.14	.73		.17	.22		.39	1.70	.12		.02			.08	.60		.84	.11				.25		.24	.03				6.23	
Pinos Altos	Gila																															2.76	
Pratt	do			.27	.11		.12			.85	.10	.17	.40			.09				.17		.48											
Putnam	San Juan																															3.00	
Redrock	Gila	.41							*	.95	1.55	.55														.42		.39					3.47
Rodeo	do																																
Arizona.																																	
Allaire Ranch	Sonora		.10							.26	.24	T.			.10						.50	.69			.08		T.		.16			2.13	
Alpine	Gila																															.95	
Aztec	do	.33																	.05	.07		.16					.34					3.80	
Benson	San Pedro	.30				.02	.31		T.	.18	.38	.21	.08		.12	.18	.50	.05	T.	.33	.13	.20	.80			.07	.18	.12	.10		T.		2.38
Bisbee	do	.25	.20		T.		.08		.05	.64	.06	.33		.10	.09		T.	.83		.33						T.	T.	.12				1.27	
Bowie	Gila																															3.73	
Buckeye	do	.41	.67					T.	T.																							4.71	
Camille	San Pedro	.40	.32			T.	.05	.04	T.	.02	1.05	.85	.09	.35	.06		T.	.65			.02	.00					.60	.13	.08			1.30	
Casa Grande	Gila																															3.23	
Casa Grande Ruins	do	1.33	.09				.02												.45	.03	.20	.04	.05				.87	.15				6.24	
Cave Creek	Verde	2.00	1.20				.26									.10	.03		1.50		.24	.15	.23	.24				.29				3.59	
Chin Lee	San Juan	.41	.57	.43	.01		.05	.01						.02	.11	.15				.58	.11	.23	T.	T.		.72	T.	.02	.17			5.78	
Chilsons Mill	Gila	.70				.01	.30	.10		1.06	.33						1.30									.75	.01	.80	.42				4.19
Clifton	do	.19		.01	.02			T.	T.	.03	.03	.52			.65	.01		.69		1.05						.49	.15	.19	.16				5.07
Cline	Salt	2.00	.54				.10				.36	.20	.20					.85			.20	.40	.65					.23	.05			2.21	
Cochise	Desert																															3.76	
Columbia	Agua Fria	1.00	.08	T.		.75								.30	T.				T.	.30	.25	.35			.45	.28						3.38	
Courtland	White	.25	.04			.02				.70	.10	.39	.04	.07	.40		.14			1.30					.02	.53						4.53	
Dos Cabezas	Desert					.05				.85	.25	1.20								.06	.85	.19			.53	.55						2.90	
Douglas	Sonora	.04			.25	T.	.02	.22	.36	.21	.28		.06	.42	.02	.33	.48	T.	.02	.34	.23	T.	.02		.06	.02	.02	.06				2.19	
Dudleyville	Gila	.84	.01	T.	.01		.01	T.	.10	T.	.10	T.	.01	.17			.10	.24		.02	.34	.23	T.									2.50	
Fairbank	San Pedro	.10			T.	T.	.04			.80	.18							.67		.07	.42				.22							5.53	
Flagstaff	L. Colorado	.51	.04	.57	.03	T.	.03	.59			.02	.29	.20	.11	T.	T.	T.	1.08	.13	T.	.23	.22	T.			.29	.34	.18	.44	.23	T.		
Flagstaff (1)	do	.60	T.	.33	T.	.04		.44			.01	1.66	.01	.15	.13	T.																	

TABLE 2.—Daily precipitation for July, 1911. District No. 9—Continued.

Stations.	Watershed.	Day of month.																															Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Arizona—Contd.																																		
Phoenix (2).....	Salt.....	2.10	1.96															.49		.20		.26					.25						5.26	
Pinal Ranch.....	Gila.....	.82	1.49	.25		.08		.11					.37					.35			1.06		.41				.40						5.34	
Pinto.....	Little Colorado.....	.49	.08		T.					.25	.35	.52	T.	.35									T.	.33	.20					.25			2.82	
Prescott.....	Hassayampa.....	.65	.58	.13			T.	T.						T.	T.			T.	T.	1.02		1.10	.40	.08	.12		.15	.20	.33				3.76	
Quartzsite.....	Colorado.....	.02	.06														.22			1.00	.47	.32											2.09	
Redrock.....	Santa Cruz.....	.19	T.									T.	T.	T.	T.			.25			1.00	.02	.06			T.		.21					0.73	
Roosevelt.....	Salt.....	1.76	.22						.64	.14							.19			.62	.31	.30			.29		.71						5.18	
Sacaton.....	Gila.....	1.40	.30					.15									.04	.45	.15	.08			.75					.79					4.11	
St. Johns.....	Little Colorado.....	.11	.22	.15	.16								.65				.18			1.20	.30	.10	.25										3.32	
St. Michaels.....	do.....	.60	.40	.05	T.	.14	T.				.05	.15	.20		T.		.05		.30	1.40	.05	T.		.05	.05	.45	.08	.15					4.17	
Salome.....	Colorado.....	.11										.06	.08				.31			.47		.33	.03										1.39	
San Carlos.....	Gila.....	.32	.51					.08										.85			1.23	T.	T.						T.				2.99	
San Simon.....	do.....																																	
Seligman.....	Verde.....	.10														.06	.12			1.05	.14			.55	T.	.06		.03	.04				2.15	
Sentinel.....	Gila.....	.42	.08										.01	.01				.01	.48			2.53											3.64	
Silverbell.....	Santa Cruz.....	2.25	.20					.05				.25				T.	.34											.55	T.				3.64	
Snowflake.....	Little Colorado.....	.87	.73	.35		T.	.76	T.				T.	.03	1.50	T.		T.	.34	.03	1.04	T.	T.			T.	.03	.02	.09	.10				5.89	
Springerville.....	do.....	.14							.08	T.	.68	.28	.07		.97	.04		.69	.27		.29	.16				.04	.29	.05					3.96	
Supai.....	Colorado.....												.10					.55							.01	.11							0.77	
Tempe.....	Salt.....	2.02	2.10	.05		.04												.73		.07	.32	.83											6.33	
Thatcher.....	Gila.....	.45			.35								.30														.02	.15					3.40	
Tombstone.....	San Pedro.....	T.				.15	.02	.32	.68	.05	.53					.14		.19			.02	.03											2.13	
Truxton.....	Colorado.....	.01			T.	T.					.10			T.		.05	T.	.03		.15	.09	T.	.08	T.	.05	T.	.11	.10					0.77	
Tuba.....	Little Colorado.....		T.	.08	T.			.21						T.	.22		.19			.52		.40				.24			.04	T.			1.90	
Tucson.....	Santa Cruz.....	.52	.18				T.			T.	.05	T.			T.	.12	T.	.21			.16				T.		.09	.24					1.57	
Tucson (1).....	do.....	.70	.07							.09	.05			.02			.14				.10				.02		.72	.25					2.16	
Tucson (2).....	do.....	.51	.06				T.	T.		T.	.06			T.			.12			.17	.01	T.			T.		.16	.34					1.43	
Vail.....	do.....								.32								.80				.57												2.59	
Walnut Grove.....	Hassayampa.....	.45	.25													.03	.01	.18	1.00	.18		.38		.01	.02	1.20	.80	.10					4.61	
Wickenburg.....	do.....	1.25	.60													1.20																	3.40	
Willcox.....	Desert.....								.31					.05			1.04			.36		.35				1.45							3.21	
Williams.....	Colorado.....	.24	.03	.40	.05	T.	.06	.28			T.	.16	.14	.33	T.		.92	.64	.08	1.30	.25	.15		.18	.17	.03		.11					5.52	
Winslow.....	Little Colorado.....																																	
Yuma.....	Colorado.....	.04														.01	T.	.37				T.											0.42	
Yuma (1).....	do.....	.08															.36																0.44	
Nevada.																																		
Caliente.....	Colorado.....																				.51	.58											1.09	
Logan.....	do.....																																	

* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

‡ Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for July, 1911. District No. 9, Colorado Valley.

Date.	Wyoming.				Colorado.												Utah.												New Mexico.					
	Daniel.		Green River.		Durango.		Grand Junction.		Gunnison.		Meeker.		Steamboat Springs.		Emery.		Fort Duchesne.		Hite.		Moab.		St. George.		Bloomfield.		Fort Bayard.							
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.						
1.....	60	27	.....	.....	73	54	80	63	80	40	71	48	75	45	80	41	82	48	86	72	90	69	88	63	77	57	79	56				
2.....	73	30	.....	.....	65	55	81	62	66	48	72	46	77	47	82	43	85	45	92	65	91	54	93	56	70	57	87	58				
3.....	77	34	.....	.....	74	55	72	62	71	48	74	50	72	50	80	46	86	42	82	62	76	70	98	52	85	58	84	64				
4.....	78	39	.....	.....	77	50	85	57	75	44	77	40	77	41	79	41	90	52	94	65	92	58	104	60	89	57	87	62				
5.....	80	44	.....	.....	80	49	91	62	77	35	80	44	81	39	81	47	95	50	98	65	94	61	97	64	93	55	90	55				
6.....	78	40	.....	.....	76	51	85	64	72	50	77	44	79	50	83	42	90	57	99	68	93	57	104	67	84	62	82	58				
7.....	76	42	.....	.....	72	54	86	64	70	50	76	40	78	45	82	41	89	50	97	74	92	61	99	70	82	57	77	55				
8.....	60	35	.....	.....	82	49	91	63	74	45	84	44	78	39	81	43	85	52	101	70	93	61	99	61	93	57	81	59				
9.....	69	27	.....	.....	85	50	90	54	80	39	78	31	78	27	80	40	90	38	100	69	96	49	100	59	99	54	82	58				
10.....	75	30	.....	.....	87	50	96	61	86	40	84	37	83	30	85	43	94	43	100	65	99	50	103	56	96	59	72	56				
11.....	80	35	.....	.....	82	59	96	65	87	60	85	40	86	33	82	40	96	46	101	70	100	60	99	72	86	61	78	59				
12.....	80	50	.....	.....	79	58	95	67	76	56	86	42	88	39	85	46	98	49	97	75	99	67	99	73	83	58	84	57				
13.....	80	42	.....	.....	77	57	80	67	81	46	81	45	86	46	87	46	96	55	95	67	99	66	100	66	86	60	88	59				
14.....	78	40	.....	.....	78	59	95	63	81	42	83	45	85	37	89	47	96	47	96	72	99	61	101	71	82	65	86	58				
15.....	79	39	.....	.....	79	54	94	66	80	49	83	46	84	39	83	45	95	57	103	72	101	62	102	69	94	61	89	60				
16.....	77	41	.....	.....	79	54	92	68	76	45	84	45	76	38	87	54	93	54	101	72	100	63	104	69	94	60	82	59				
17.....	80	43	.....	.....	75	50	92	64	77	48	81	50	77	39	85	52	94	55	102	73	99	60	98	68	88	57	80	58				
18.....	81	42	.....	.....	74	53	88	66	75	40	76	48	76	45	83	59	84	58	99	73	98	62	93	69	92	60	85	58				
19.....	75	40	.....	.....	71	57	81	66	67	53	70	47	75	39	82	50	88	58	88	69	93	65	91	66	73	59	82	61				
20.....	77	36	.....	.....	76	59	89	62	75	49	87	44	85	39	81	53	94	53	95	68	90	60	92	65	82	58	83	60				
21.....	80	40	.....	.....	74	57	78	66	70	50	78	52	80	47	79	56	91	54	94	73	89	68	82	65	85	63	83	61				
22.....	81	39	.....	.....	77	53	72	63	64	52	71	57	65	50	76	57	90	60	92	75	88	67	89	66	88	59	86	55				
23.....	83	35	.....	.....	80	51	88	60	69	53	67	37	78	40	76	57	93	51	96	70	91	58	91	67	91	57	84	58				
24.....	81	39	.....	.....	74	51	88	60	70	39	81	37	77	37	79	53	90	47	97	67	89	58	95	64	77	57	76	57				
25.....	83	37	.....	.....	69	53	78	64	72	48	74	44	75	42	73	55	85	56	90	64	87	57	96	66	89	55	74	54				
26.....	70	35	.....	.....	72	50	88	61	71	45	78	46	76	41	72	51	93	48	96	64	93	60	97	68	89	55	82	58				
27.....	70	33	.....	.....	76	47	84	61	76	46	79	42	77	38	80	52	91	48	94	71	91	60	93	65	87	54	79	54				
28.....	73	30	.....	.....	77	48	89	59	74	44	80	43	80	42	81	56	93	50	96	72	94	60	97	68	90	53	85	58				
29.....	76	31	.....	.....	78	48	89	60	70	46	80	44	84	34	80	53	94	47	98	65	95	59	99	64	93	54	88	60				
30.....	69	43	.....	.....	80	50	91	60	78	40	80	43	77	38	84	49	92	77	99	67	95	59	100	59	94	54	89	62				
31.....	72	37	.....	.....	82	46	90	60	76	48	80	37	70	31	82	47	92	43	100	65	97	52	102	56	95	49	88	63				
Mns.....	75.8	37.3	.....	.....	76.8	52.6	86.9	62.6	74.7	46.4	78.6	43.8	78.5	40.2	81.3	48.5	91.1	51.3	96.1	69.0	93.6	60.5	96.9	64.6	87.3	57.5	83.0	58.4				

Date.	Arizona.																						Logan, Nev.	
	Bisbee.		Flagstaff.		Fort Apache.		Grand Canyon.		Parker.		Phoenix.		Prescott.		St. Michaels.		San Carps.		Tucson.		Yuma.		Max.	Min.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.....	78	60	58	52	70	58	64	43	103	70	79	66	64	55	72	52	78	65	82	65	88	72	.....	.....
2.....	71	56	72	51	75	59	70	40	105	75	82	65	76	54	70	53	87	63	82	63	101	69	.....	.....
3.....	81	56	70	50	80	56	78	40	108	75	94	72	79	55	74	52	97	62	93	49	105	70	.....	.....
4.....	86	61	74	44	87	45	81	41	112	85	100	69	85	53	81	51	97	65	98	68	110	69	.....	.....
5.....	83	62	76	44	88	48	82	41	113	80	104	72	86	53	83	50	100	73	100	70	110	73	.....	.....
6.....	77	62	80	44	89	46	83	43	111	80	100	76	95	52	82	50	98	71	101	78	107	78	.....	.....
7.....	80	62	76	49	87	52	84	46	110	70	100	74	87	53	83	55	99	62	98	73	106	76	.....	.....
8.....	77	63	78	44	88	52	85	47	107	95	100	78	85	60	81	50	103	75	96	72	106	75	.....	.....
9.....	74	62	84	47	88	55	83	57	100	85	100	78	92	56	85	51	100	67	93	75	93	75	.....	.....
10.....	73	61	78	52	87	50	82	56	102	80	92	78	84	58	83	52	94	72	89	70	98	80	.....	.....
11.....	79	61	73	53	89	52	81	55	108	80	98	77	82	56	80	59	91	69	90	71	105	72	.....	.....
12.....	82	60	73	54	86	59	80	54	104	80	101	78	84	64	79	53	102	69	98	70	103	75	.....	.....
13.....	82	63	82	48	90	58	79	60	112	82	107	78	88	56	81	55	106	58	104	74	111	77	.....	.....
14.....	82	63	80	53	87	55	83	52	109	82	106	83	88	61	82	55	107	66	102	81	109	84	.....	.....
15.....	82	63	79	54	89	57	76	54	118	82	104	83	93	61	80	52	103	66	106	80	114	84	.....	.....
16.....	84	64	84	51	85	52	79	57	113	90	104	78	86	60	81	54	107	62	102	71	107	81	.....	.....
17.....	76	62	78	52	88	56	77	59	103	85	92	73	85	63	83	54	92	57	91	71	94	77	.....	.....
18.....	80	62	74	57	88	60	65	55	101	80	92	79	78	61	84	59	96	61	94	72	100	78	.....	.....
19.....	80	65	69	56	92	58	63	53	105	80	90	77	74	58	79	57	89	57	94	73	102	78	.....	.....
20.....	80																							

CLIMATOLOGICAL DATA FOR JULY, 1911.

DISTRICT No. 10, GREAT BASIN.

ALFRED H. THIESSEN, District Editor, and J. CECIL ALTER, Observer, Acting District Editor.

GENERAL SUMMARY.

Typical of the summer climate of an arid, mountainous country, the weather during July in the Great Basin was generally fair and quiet, though much cooler weather than is usual in July occurred in the Wasatch Mountains and generally over the eastern portion of the basin; and in limited districts local rains were so heavy during thunderstorms as to produce some flooding. The record for cool weather was not exceeded, however, at any station so far as is known, neither was the record for excessive precipitation at the few stations receiving the large amounts.

The month was quite uniformly reported as being favorable for all agricultural and manufacturing interests. The comparatively light precipitation, and the few rainy days, permitted almost uninterrupted field work, and the harvesting of grain and the cutting of the second crop of alfalfa in most districts proceeded in safety. The cool weather also had the tendency to lessen evaporation on the arid farms, yet it was sufficiently warm to produce normal growth and proper maturing of practically all crops.

There was an average of 16 clear days, 10 partly cloudy days, and 5 cloudy days in the basin, though the number of clear days was somewhat greater in the middle and western portions. The wind movement was generally light.

TEMPERATURE.

The mean temperature for the basin, 69° , was 2.5° below the normal, considering departures only from the stations having the longer records. This mean value is 3° below the mean of July, 1910.

As a general rule, the temperature was slightly above normal in the northwestern part of the Great Basin, about normal in the middle portion, and considerably below normal in the eastern portion.

The first decade was the coolest part of the month in practically all parts of the district, the lowest temperatures for the month occurring quite uniformly within that period. At the time of coldest weather the minimum temperatures fell below freezing at a great many stations, especially the mountain stations of Utah, and scattered reports were received of slight damage to vegetation. Comparatively cool weather continued throughout the rest of the month, though not below freezing in any of the agricultural districts. The daytime temperatures were at no time excessive. A few days about the middle of the month were warmest in practically all parts of the basin.

PRECIPITATION.

The average precipitation of 0.62 inch was a departure of 0.17 inch below the normal of the long record stations, being considerably lighter than the average for last July. Most of this precipitation occurred in moderate showers, though at a few places local thunder showers produced excesses of rain which in portions of southern Utah and western Nevada ran through the fields and down the streams in damaging quantities. On the average the rainfall was heavier in the eastern and southeastern portions of the district than in the middle and northwestern portions.

The rainy period covered about two weeks' time, the greater portion of the rain falling within the middle two weeks of the month in the middle and western portions and during the last two weeks in the eastern portion of the basin. There was an average of 4 rainy days, ranging from none at several places to 10 or more at scattered places in Utah. Thunderstorms were numerous in the northern and western portions of the district, and in the western portion they were reported as being unusually severe in certain localities. Elsewhere the electrical storms were comparatively few and light. No snow fell during the month so far as is known, and that remaining in the mountains of Nevada was reported by the section director to have receded beyond the 7,000-foot contour during the month. Water continued plentiful in all parts of the basin for irrigation and other purposes, and the comparative dearth of rain was not seriously felt anywhere.

PRECIPITATION AVERAGES FOR LARGE AREAS.

ALFRED H. THIESSEN, Section Director.

The fact that precipitation varies considerably over not only large but also over quite limited areas is a matter of common observation. Many factors enter into the question as to why different amounts of precipitation are recorded at stations quite near one another, chief of which are the relation of stations to mountain ranges, their elevation, latitude, nearness to large bodies of water, and locations in relation to the average tracks of storms. Any one of these factors or any combination of them may cause a great difference between the rainfall in different sections of an area, as a State or large county.

In calculating the average amount of precipitation for an area it is a common practice to add together the amounts recorded at each station within the area and

divide the sum by the number of stations considered. Using this method the average rainfall for an area may be represented by the following equation:

$$1. Q = \frac{(R_a + R_b + R_c + \dots R_n)}{n},$$

where Q is the average rainfall, R_a , R_b , R_c , and so forth, represent the rainfall at stations a, b, c, and so forth, and n the number of stations.

The method outlined above is incorrect and may be so realized by a consideration of the cases exhibited in the following figures:

1	2	3	4
1	2	3	3
1	2	2	2
1	1	1	1

CASE 1, Fig. 1.

1		3	4
			3
1			1

CASE 2, Fig. 2.

1	2		4
	2		
1			1

CASE 3, Fig. 3.

1			
1		3	
1	1		1

CASE 4, Fig. 4.

1	2		4
	2		
1			1

Fig. 5.

The cases represent the same area, but with different combinations of stations considered in each case in determining the average for the area. The stations are located in the center of each square. In case 1 data from all stations were received, and it is seen that the rainfall diminishes from the northeast to the southwest. In cases 2, 3, and 4 data from only six stations were received,

but a different six in each case. In calculating the average rainfall in the four cases by the method just explained various results are obtained, and are shown in the table below:

	Number of stations.	Average precipitation, in inches.	Variation from true amount.
Case 1.....	16	1.88	0.
Case 2.....	6	2.17	15 per cent too high.
Case 3.....	6	1.83	3 per cent too low.
Case 4.....	6	1.43	24 per cent too low.

The true average for the area is 1.88 inches. This was calculated from data given in case 1, where the stations are evenly distributed, and data are available from each station. But in the other cases where data from many stations are missing, and those stations from which data are available are unevenly distributed, the averages calculated by the same method are discordant.

The discordant results are due to the fact that the extent of the areas represented by the data was not considered. The amount of rain recorded at any station should represent the amount for only that region inclosed by a line midway between the station under consideration and surrounding stations. Giving, therefore, each station its proper weight in reference to the area which it represents, we have, instead of the former equation the following:

$$2. Q = \frac{A_a R_a + A_b R_b + A_c R_c + \dots A_n R_n}{A_a + A_b + A_c + \dots A_n},$$

where A_a , A_b , A_c , and so forth, stand for the areas represented by the rainfall recorded at stations a, b, c, and so on.

Let case 3 be considered from this new point of view.

Figure 5 shows this case with lines drawn midway between those stations where data are available. Assuming that the area of each small square is 4 and substituting in the last equation, we have:

$$3. Q = \frac{4 \times 12 + 2 \times 20 + 1 \times 32}{12 + 20 + 32} = 1.88 \text{ inches.}$$

which is the true average for the area.

The more stations in any area, the more nearly correct will the average be when found in accordance with the last equation.

When the stations are evenly distributed as in case 1, then as all areas are equal, the last evolved equation becomes the same as the first.

The average precipitation for an area is useful in making comparisons; as, the precipitation of one month compared with another. If it is desired to compare the rainfall of one year with that of another, one must either use data from the same stations in both years if he wishes to compute the average rainfall in accordance with equation 1, or use equation 2, which will give nearly the true value even if data from an entirely new set of stations were used, but, of course, the distribution of the stations in both cases should be very nearly the same.

The rainfall in Utah varies greatly, being quite heavy on the western slope of the Wasatch Mountains, and considerably lighter elsewhere. I have found the average annual rainfall of this State to be 13.25 inches when calculated according to equation 1, but only 11.11 inches

when found by using equation 2, making the first determination almost 19 per cent too high.

In using equation 2 the data were entered on a map of Utah, lines being drawn midway between the stations in much the same manner as shown in figure 5, with the exception that greater accuracy was sought for. A planimeter was used to obtain the square contents of the irregular areas, and substitution was made in the equation as illustrated in equation 3.

In Utah most of the weather stations are situated in a belt about 80 miles wide, extending from Rich County in

a southwesterly direction to Washington County. In this belt lie the fertile valleys and consequently the bulk of the population; while to the northwest and southeast of this belt, the land is not nearly so thickly settled and weather stations are much less numerous. Therefore, having a great many stations in this belt of greater rainfall, these receive undue prominence in calculating averages for the State by simply adding the amounts at each station and dividing the sum by the number of stations. To give the data at each station its proper weight, equation 2 should be used.

TABLE 1.—Climatological data for July, 1911. District No. 10, Great Basin.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Wyoming.																				
Border	Uinta	6,085	9	60.8		88	13†	28	1	54	0.07	- 0.27	0.07	0	1	19	12	0	w.	S. W. Condron.
Cokeville	do.	6,204	1	57.8		89	13	26	1	56	0.48		0.25	0	6	27	1	1	w.	E. J. Tuckett.
Evanston	do.	6,880	14	60.4	- 1.4	86	12	30	1†	46	0.70	- 0.06	0.47	0	4	21	10	0	w.	Frank Tucker.
Idaho.																				
Geneva	Bear Lake		3			92	14†			48	0.15		0.13	0	2	30	1	0		F. W. Boehme.
Grace	Bannock	5,400	5	65.7		92	14†	35	9	48	1.03		0.63	0	4	22	7	2	n.	Harold Cole.
Paris	Bear Lake	5,946	15	60.0 ^d	- 3.4	89 ^d	14	24 ^d	1	51 ^d	0.15	- 0.49	0.15	0	1				sw.	John Norton
Weston	Oneida	4,460	14	66.5	- 1.5	94	15	34	1	47	0.50	- 0.08	0.25	0	3	22	6	3	s.	W. T. Chatterton.
Utah.																				
Alpine	Utah	4,900	14			91	17	43	2	43	0.00		0.00	0	0	22	6	3		J. F. Carlisle.
Beaver	Beaver	6,000	8	68.6		91	17	43	2	43	1.86		1.04	0	11	5	25	1	sw.	James Connell.
Black Rock	Millard	4,872	11	69.6		100	15	30	4	62	0.97		0.58	0	3	17	9	5		W. D. Livingston.
Burrville	Sevier			63.6		92	10†	36	1	51	0.85		0.30	0	4					F. R. Curtis.
Castle Rock	Summit	6,244	8			96	15	45	2	35	0.90		0.75	0	4	16	11	4		David Moore.
Cedar City	Iron	5,750	6	72.2		96	15	45	2	35	2.88		1.19	0	8	6	13	12	sw.	Parley Dailey.
Center	Tooele			67.6		96	14	32	9	50	0.98		0.49	0	6	14	15	2	n.	L. C. Peterson.
Clarkston	Cache										1.20		0.70	0	4					W. J. Griffiths.
Corinne	Boxelder	4,240	41	76.1	- 2.9	105	14	40	1	61	T.	- 0.43	T.	0	0	19	8	4		A. C. Murphy.
Deseret	Millard	4,541	17	73.8	+ 1.8	98	15	40	2	46	0.10	- 0.05	0.10	0	1	15	9	7	n.	Samuel W. Western.
Enterprise	Washington	4,270	3								2.11		0.93	0	6	9	16	6		John Day.
Fairfield	Utah	4,866									0.44		0.28	0	4	21	8	2		W. Harden Ashby.
Farmington	Davis	4,267	11	71.2	- 1.3	95	14†	39	1	45	0.11	- 0.26	0.06	0	2	28	3	0	sw.	Charles Boylin.
Fillmore	Millard	5,100	21	75.8	+ 0.5	102	11†	41	2	50	1.76	+ 1.13	0.85	0	5					J. J. Starley.
Frisco	Beaver	7,318	17	68.6	- 5.2	96	17†	33	1	45	2.53	+ 1.77	1.55	0	8					Essen Nordberg.
Garrison	Millard		8																	E. M. Smith.
Government Creek	Tooele	5,277	11	70.5	- 2.6	93	7†	36	1	42	0.69	+ 0.25	0.47	0	3	19 ^b	7 ^b	3 ^b	n.	Walter James.
Grantsville	do.		2								0.24		0.19	0	3	23	8	0	n-s.	J. C. Woodmansee.
Grouse Creek	Boxelder										0.57		0.26	0	4	14	11	6	sw.	Philip Paskett.
Heber	Wasatch	5,606	18	64.4	- 1.5	93	15	28	9	55	0.13	- 0.67	0.08	0	2	23	8	0	s.	John Crook.
Henefer	Summit	5,301	12	63.8	- 1.0	93	15	29	9	55	0.05	- 0.52	0.05	0	1	18	7	6	nw.	William Brewer.
Hooper	Weber	4,436																		T. M. Jones, Jr.
Ibapah (near)	Tooele	7,500	6	60.0		82	13	33	1	41	2.34		0.80	0	6	14	17	0		J. S. Lawton.
Ibex	Millard																			John J. Watson.
International	Tooele	5,370																		I. S. R. Co.
Iosepa	Millard			74.3		102	31	39	1†	52	0.57		0.57	0	1	11	10	10		George K. Hubbell.
Joy	Juab			71.0		95	14	42	9†	52	0.15		0.15	0	1	16	13	2		Samuel Hogans.
Kanosh	Millard	5,250	3								1.17		0.36	0	5					George Crane.
Kelton	Boxelder	4,230	33	69.2	- 8.2	95	16	47	1†	43	T.	- 0.36	T.	0	0	15	16	0	n.	F. W. Klock.
Lemay	do.			82.4		96	15	65	1†	26	0.06		0.05	0	2	17	12	2		Agent S. P. Co.
Levan	Juab	5,010	21	70.6	- 0.8	95	14	41	1†	46	0.70	+ 0.10	0.19	0	7	22	5	4	sw.	William Brown.
Logan	Cache	4,507	20	69.5	- 1.9	90	14	38	1	35	0.12	- 0.30	0.06	0	2				sw.	Utah Exp. Station.
Low	Tooele			76.0 ^m		96	14†	48	8	32	T.		T.	0	0	18 ^m	4 ^m	2 ^m		T. G. Morris.
Luchin	Boxelder	4,504	7	73.2		97	15	44	2	49	0.05		0.05	0	1	13	18	0		C. J. Burke.
Lund	Iron	5,086		72.4 ^a		97	11†	45	9	47	2.64		1.12	0	9	4 ^a	15 ^a	11 ^a	sw.	Job F. Hall.
Manti	Sanpete	5,575	17	61.6	- 8.9	83	11	38	1†	38	1.21	+ 0.64	0.44	0	6	4	5	22		J. M. Anderson.
Maple Creek	Utah										0.70		0.39	0	2	20	11	0		Lewis W. Gillilan.
Marion	Summit	6,750	7								0.55		0.12	0	9	9	10	12	nw.	James Woolstenhulme.
Marysville	Plute	6,180	12	66.1	- 0.2	93	10†	41	3†	52	1.40	+ 0.41	0.63	0	10	4	9	18	sw.	John W. Henry.
Meadowville	Rich	6,200	12	62.6	- 5.6	85	14†	31	1	39	0.20	- 0.29	0.15	0	2	25	6	0	w.	J. S. Moffat.
Mercur	Tooele					89	14	55	8	20	1.26		1.01	0	8	3	28	0	nw.	T. H. Franklin.
Midlake	Boxelder			76.6		89	14	55	8	20	0.00		0.00	0	0	23	0	8		Agent S. P. Co.
Millford	Beaver	4,962	7	71.8		98	10†	37	31	57	0.93		0.50	0	7				s.	H. F. Aller.
Millville	Cache	4,848	16								0.13	- 0.25	0.05	0	5	9	22	0		Fred Yeates.
Minersville	Beaver	5,070	14								0.91	+ 0.34	0.56	0	5					George Roberts, sr.
Modena	Iron	5,479	11	70.2	+ 0.5	93	15	46	2	43	1.84	+ 0.58	0.85	0	10	7	14	10	w.	U. S. Weather Bureau.
Morgan	Morgan	5,068	8																sw	W. Visick.
Moroni	Sanpete	5,519	3	67.4 ⁱ		91	12	43	2	37	1.27		0.54	0	7	8 ^d	13 ^d	6 ^d	sw	B. F. Eliason.
Mount Nebo	Utah	4,650	10	73.0	- 1.2	98	7	45	2	37	0.59	+ 0.14	0.16	0	6	20	11	0	n.	D. C. Walkey.
Nephi (near)	Juab		8																	S. Boswell.
Newcastle	Iron																			T. W. Jones.
Oak City	Millard	4,900	7			96	14				0.56		0.48	0	2	11	19	1		Peter Nielson.
Ogden	Weber	4,310	10	69.6	- 4.5	94	10	36	1	44	0.17	- 0.08	0.09	0	3	24	7	0	w.	A. Van De Graff.
Park City	Summit	7,800	14	63.0	- 1.4	88	13	30	1	46	0.44	- 0.38	0.32	0	3	10	15	6		Gertrude Evans.
Park Valley	Boxelder										0.30		0.17	0	2	31	0	0	w.	Thomas Sirlind.
Parowan	Iron	5,970	20	69.0	- 2.1	93	15	44	4	35	1.52	+ 0.58	0.60	0	10	16	0	15		Scott Matheson.
Payson	Utah	4,637	8								0.80		0.25	0	4	17	12	2	sw.	D. L. Coombs.
Pelican Point	do.										0.14		0.10	0	3	26	4	1		B. M. Mendenhall.
Pine Cliff Ranch	Summit										1.70		0.70	0	4					L. E. Leavitt.
Pinto	Washington	5,907	15	65.3	- 1.3	93	15	37	9	52	1.37	+ 0.32	0.55	0	11	5	12	14	s.	J. H. Harrison.
Promontory	Boxelder	4,913	40								0.00	- 0.20	0.00	0	0					F. C. Houghton.
Provo	Utah	4,532	23	69.9	- 3.2	98	14	34	9	55	0.20	- 0.03	0.20	0	1	8	23	0	n.	James A. Oliver.
Randolph	Rich	6,442	9								0.26		0.05	0	6	21 ^a	0 ^a	3 ^a	sw.	William Rex.
Revier	Salt Lake										0.16		0.08	0	2					E. L. Terry.
Richfield	Sevier	5,350	21	69.6 ^d	- 0.9	94	11†	43	9	50	0.42	- 0.13	0.32	0	2	16	1	10		Joseph J. Jensen.
Saltair	Salt Lake	4,220	9	72.8 ^a		88	13†	48	1	23	0.33		0.33	0	1				nw.	E. J. Bench.
Salt Lake City	do																			

TABLE 1.—Climatological data for July, 1911. District No. 10—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Oregon.																				
Burns.....	Harney.....	4,157	20	67.6	+ 1.8	97	17	29	7	51	0.13	- 0.08	0.13	0	1	27	4	1	w.	J. C. Welcome, jr.
Cliff.....	Lake.....	4,300	4																	John C. Green.
Paisley.....	do.....	4,500	8	71.5		95 ^a	16	39 ^a	1	39 ^a	T.		T.	0	0	20 ^a	4 ^a	0 ^a	w.	E. C. Woodward.
Silver Lake.....	do.....	4,700	14	66.4	- 0.2	99	16	28	8	56	0.16	- 0.34	0.10	0	3	9	22	0	w.	L. W. Charles.
California.																				
Tahoe.....	Placer.....		1	58.8		84	15	32	1	41	0.00		0.00	0	0	30	1	0	w.	R. M. Watson.
Truckee.....	Nevada.....	5,819	40	67.9	+ 2.5	90	15†	44	1	34	0.00	- 0.19	0.00	0	0	6	25	0		Southern Pacific Co.
Nevada.																				
Austin.....	Lander.....	6,594	22																	F. O. Booe.
Battle Mountain.....	do.....	4,843	40	70.4	- 4.8	106	18	36	2	62	0.47	+ 0.34	0.25	0	2	23	7	1	w.	Southern Pacific Co.
Beowawe.....	Eureka.....	4,905	40	67.6	- 9.6	103	14	35	8	58										Do.
Carlin.....	Elko.....	5,232	40	72.0	+ 1.4	109	16	30	9	68	0.00	- 0.11	0.00	0	0	31	0	0		Do.
Carson Dam.....	Churchill.....	4,032	4	76.1		98	17	55	25†	34	0.33		0.18	0	3					U. S. Reclamation Service.
Cherry Creek.....	White Pine.....	6,450	3	69.4		94	14	41	9	46	0.61		3.24	0	6	15	11	3	w.	J. H. Leishman.
Clover Valley.....	Elko.....	6,000	11	67.9 ^a	+ 1.2	92‡	6	43 ^a	3	41‡	0.34	- 0.01	0.32	0	1	12	19	0		I. F. Wiseman.
Cobre.....	do.....		2			26	9				1.24		0.50	0	4	19	12	0	sw.	Southern Pacific Co.
Columbia.....	Esmeralda.....	5,750	4	74.0		97	15	44	1	42	1.39		0.90	0	9	17	13	1	nw.	A. Booth.
Dutton.....	Elko.....	5,100	3	75.7		95	16	52	8†	34	0.00		0.00	0	0	9	15	7	w.	Golconda Cattle Co.
Elko.....	do.....	5,342	40	68.1	- 2.8	96	16	32	9	54				0		11	17	3	w.	E. J. Clark.
Ely.....	White Pine.....	6,421	20																	G. C. Hunting.
Eureka.....	Eureka.....	6,500	8	68.4		93	14†	36	1	48	0.50		0.12	0	9	12	12	7	n.	Clay Simms.
Fallon.....	Churchill.....	3,965	6	74.2		100	6†	43	3	50	0.09		0.09	0	1	22	6	3	w.	U. S. Experiment Station
Fernley.....	Lyon.....	4,200	38	74.2	- 3.7	100	16	38	9	55	0.07	- 0.24	0.07	0	1	20	9	2		Mrs. G. A. Steele.
Gardnerville.....	Douglas.....	4,830	11																	Wm. Dangberg.
Glenbrook.....	do.....		2																	C. C. Henningsen.
Golconda.....	Humboldt.....	4,697	32	71.8	- 4.5	97	16	40	2†	46	T.	- 0.07	T.	0	0	23	6	2	sw.	Southern Pacific Co.
Halleck.....	Elko.....	5,631	18	67.4	- 2.3	96	14†	30	8	54	0.26	- 0.14	0.23	0	2	15	16	0		Do.
Jean.....	Clark.....	2,074	3								T.		T.	0	0					Salt Lake Route.
Lewers' Ranch.....	Washoe.....	5,500	23	67.8		91	15	38	1	44	0.00		0.00	0	0	15	16	0		Ross Lewers.
Lovelocks.....	Humboldt.....	3,977	17	70.0	- 6.5	96	6	40	1†	46	0.06	- 0.07	0.05	0	2	21	9	1	s.	C. H. Allender.
Millet.....	Nye.....		3	68.2		92	5†	37	1	52	0.22		0.12	0	2	19	6	6	w.	Fred J. Jones.
Mina.....	Mineral.....	4,600	4	77.2		99	5	50	1	40	0.07		0.07	0	2	12	6	13	s.	Southern Pacific Co.
Potts.....	Nye.....	6,990	18	68.2	- 2.4	94	5	33	1	56	0.12	- 0.54	0.06	0	3	7	3	21	s.	Miss Mainie Potts.
Quinn River Ranch.....	Humboldt.....	4,850	9	69.1		96	29	34	9	55	0.22		0.15	0	2					F. M. Payne.
Reno.....	Washoe.....	4,532	40	71.4	+ 3.9	95	14	42	1	44	1.59	+ 1.45	0.74	0	5	22	6	3	w.	U. S. Weather Bureau.
Soda Lake.....	Churchill.....	4,534	4																	U. S. Reclamation Service.
Tecoma.....	Elko.....	4,812	33	65.8	- 8.4	95	23	33	7	54	0.01	- 0.15	0.01	0	1					Southern Pacific Co.
Tonopah.....	Nye.....	6,090	4	73.2		93	15	49	1	31	0.99		0.48	0	7	8	22	1	w.	U. S. Weather Bureau.
Wabuska.....	Lyon.....	4,347	8																	Vic Bernard.
Wells.....	Elko.....	5,631	39	69.0	- 2.1	97	13	31	9	57	0.12	- 0.14	0.06	0	3	10	17	4		Southern Pacific Co.
Winnemucca.....	Humboldt.....	4,432	32	71.6	0	99	17	41	1	45	0.12	- 0.05	0.10	0	3	22	7	2	sw.	U. S. Weather Bureau.

a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

[illegible]

* Precipitation included in that of the next measurement.
 † Separate dates of falls not recorded.
 ‡ Precipitation for the 24 hours ending on the morning when it is measured.
 T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for July, 1911. District No. 10, Great Basin.

Date.	Nevada.																			
	Burns, Oreg.		Elko.		Ely.		Eureka.		Fallon.		Jean.		Lovelocks.		Millet.		Mina.		Quinn River Ranch.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	60	45	75	33	.....	.....	74	36	80	45	97	.....	80	40	78	37	82	50	76	46
2.....	85	46	81	34	.....	.....	82	39	88	45	100	.....	85	46	83	39	91	54	87	37
3.....	84	46	89	39	.....	.....	86	51	93	43	.....	.....	89	45	87	43	93	58	89	46
4.....	89	49	90	44	.....	.....	90	40	96	53	.....	.....	91	49	87	45	96	61	91	51
5.....	90	42	91	43	.....	.....	91	50	98	57	.....	.....	95	51	92	45	99	64	95	63
6.....	92	40	95	50	.....	.....	89	57	100	60	.....	.....	96	55	89	53	98	65	93	53
7.....	75	29	93	55	.....	.....	89	53	94	52	.....	.....	91	51	90	51	98	59	85	50
8.....	75	36	87	37	.....	.....	85	41	81	53	.....	.....	82	47	84	46	91	71	76	52
9.....	77	40	85	32	.....	.....	88	40	90	44	.....	.....	88	40	90	39	95	55	89	34
10.....	85	43	91	37	.....	.....	90	46	96	52	.....	.....	94	48	92	40	98	60	92	51
11.....	87	44	92	50	.....	.....	87	54	94	66	.....	.....	92	60	92	56	95	67	93	63
12.....	92	44	94	53	.....	.....	92	55	97	54	.....	.....	94	52	90	55	98	58	.....	.....
13.....	93	56	91	57	.....	.....	89	59	95	70	.....	.....	89	65	84	63	91	68	.....	.....
14.....	93	55	95	64	.....	.....	93	52	98	54	.....	.....	94	54	90	48	98	58	.....	.....
15.....	95	53	94	55	.....	.....	93	62	100	67	.....	.....	95	63	92	54	98	66	.....	.....
16.....	94	59	96	57	.....	.....	91	57	100	60	.....	.....	94	57	92	48	96	64	.....	.....
17.....	97	46	94	59	.....	.....	90	60	100	64	.....	.....	95	59	90	54	93	66	.....	.....
18.....	94	46	90	55	.....	.....	86	53	94	59	.....	.....	89	56	84	54	94	68	.....	.....
19.....	93	55	91	47	.....	.....	87	49	94	58	.....	.....	90	50	89	48	91	58	90	59
20.....	93	54	93	53	.....	.....	86	58	95	59	.....	.....	89	55	91	55	94	60	89	55
21.....	90	39	88	52	.....	.....	82	59	93	53	86	.....	88	51	88	54	95	62	89	59
22.....	86	45	88	46	.....	.....	83	47	90	52	90	.....	86	48	92	48	94	59	88	57
23.....	87	46	88	40	.....	.....	86	47	94	54	94	.....	88	51	87	54	92	61	91	55
24.....	90	57	89	43	.....	.....	82	51	88	65	104	.....	87	56	83	55	85	60	94	45
25.....	91	55	88	52	.....	.....	83	49	92	50	98	.....	86	46	86	45	90	62	83	53
26.....	89	42	87	42	.....	.....	84	46	93	51	100	.....	84	46	87	44	92	54	85	44
27.....	90	47	88	43	.....	.....	84	50	93	52	98	.....	87	46	85	51	90	56	88	43
28.....	95	55	91	44	.....	.....	84	54	94	59	100	.....	88	52	89	55	95	65	75	45
29.....	90	53	88	57	.....	.....	82	50	92	52	100	.....	86	50	87	45	90	59	96	60
30.....	89	52	86	40	.....	.....	84	45	90	51	104	.....	85	45	82	46	92	60	89	49
31.....	87	41	88	36	.....	.....	88	40	94	52	104	.....	86	45	90	42	95	61	88	42
Mns.....	88.0	47.1	89.5	46.7	.....	.....	86.5	50.3	93.4	55.0	.....	.....	89.2	50.9	87.7	48.8	93.5	60.9	88.0	50.2

Date.	Wyoming.										Utah.									
	Border.		Evanston.		Corinne.		Deseret.		Government Creek.		Ibapah.		Marysville.		Meadowville.		Modena.		Ogden.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	66	28	67	30	80	40	77	43	73	36	64	33	75	43	69	31	75	50	70	36
2.....	76	30	76	36	86	46	86	40	80	38	65	34	80	45	69	35	78	46	80	40
3.....	82	35	77	36	88	42	88	45	84	44	74	41	85	41	80	49	88	47	83	48
4.....	83	42	78	37	90	53	92	51	89	58	78	43	88	46	83	44	86	52	81	53
5.....	85	47	82	43	102	42	92	58	91	56	80	49	77	47	80	45	86	68	86	62
6.....	83	67	75	46	101	57	89	59	88	61	76	40	80	49	81	48	87	52	84	50
7.....	85	43	80	43	101	58	93	59	93	58	75	45	89	43	84	50	90	51	85	52
8.....	72	48	77	47	99	53	77	55	77	52	68	37	80	36	70	45	83	59	89	53
9.....	74	27	71	30	99	56	85	45	83	41	77	36	89	41	74	35	90	47	92	55
10.....	80	31	78	37	101	58	94	58	90	47	80	44	93	41	77	38	92	51	94	54
11.....	84	32	84	35	102	41	95	52	91	50	80	44	93	56	78	38	90	61	93	52
12.....	86	36	86	40	100	58	96	58	92	48	80	46	92	51	81	48	90	59	90	46
13.....	88	39	85	52	101	57	95	59	92	55	82	47	91	50	83	44	88	59	92	48
14.....	88	49	84	48	105	60	97	61	93	64	78	50	84	52	85	50	88	59	88	47
15.....	88	49	84	46	104	62	98	61	93	62	80	52	92	50	83	56	93	58	86	49
16.....	88	47	81	43	98	60	95	83	89	60	81	53	90	50	85	49	93	61	90	52
17.....	88	48	81	48	100	58	96	58	91	59	79	43	89	53	82	50	88	57	89	51
18.....	86	46	77	52	100	67	90	65	88	61	79	46	79	55	80	59	84	56	87	53
19.....	84	44	80	47	98	57	91	60	89	58	78	54	80	56	79	48	82	58	91	56
20.....	82	40	80	43	97	53	93	62	86	61	78	47	84	54	83	44	81	56	92	54
21.....	85	39	82	48	98	56	88	63	87	60	75	44	71	55	81	48	74	58	90	55
22.....	87	38	74	51	100	57	85	60	82	57	73	44	79	53	79	59	79	56	92	56
23.....	86	32	79	40	96	53	90	54	84	52	77	45	79	52	74	37	82	57	91	56
24.....	85	34	80	47	101	48	89	59	86	51	75	44	77	55	79	62	86	58	89	53
25.....	84	32	78	48	101	59	90	59	84	58	78	47	79	51	82	49	84	57	89	55
26.....	80	33	76	47	98	65	89	58	82	55	72	44	81	48	79	49	83	53	91	56
27.....	80	36	77	38	95	53	89	63	86	58	69	44	80	52	81	42	83	55	90	58
28.....	81	34	78	41	101	55	90	59	89	59	65	44	79	45	85	50	84	53	88	54
29.....	84	32	79	40	98	57	93	60	88	59	75	44	82	47	79	48	86	51	87	55
30.....	86	53	74	40	97	56	90	58	83	53	75	43	80	45	78	47	86	52	85	50
31.....	80	33	77	37	95	48	90	47	85	51	78	47	78	47	78	45	88	47	84	47
Mns.....	82.8	38.8	78.6	42.3	97.8	54.4	90.4	57.2	86.7	54.3	75.6	44.5	83.1	49.1	79.4	45.9	85.4	54.9	87.7	51.4

* , b , c , etc. indicate respectively 1 , 2 , 3 , etc. , days missing from the record.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CLIMATOLOGICAL DATA FOR JULY, 1911.

DISTRICT No. 11, CALIFORNIA.

Prof. ALEXANDER G. McADIE, District Editor.

GENERAL SUMMARY.

With the exception of a period of about 10 days during the first half of July, 1911, the month was cool. In other portions of the United States, particularly the central and eastern portions, the month will long be remembered for high temperatures and protracted heat. In a special bulletin it was stated that—

An examination of the weather conditions in the United States during the past 40 years does not disclose another period in the late spring and early summer when the temperatures have been so uniformly high for so long a period and over such a large portion of the country.

Doubtless in the separate reports published in this issue of the Monthly Weather Review attention is called by the various editors to this condition of excessive heat. So far as the Pacific coast is concerned, the condition has been just the opposite. The spring months have been marked by cool weather and the summer thus far, with the exception of the one short period referred to above, has also been cool. At San Francisco, where the range in temperature is small and departures are seldom noticeable, the month was the coolest since 1901. In fact, along the coast north of Point Conception low temperatures and fog were so much in evidence that instead of favorable comment on cool conditions there was general remark on the unpleasant and disagreeable character of the weather. Along the coast south of Point Conception, however, while there was much high fog, the temperatures were moderate and at most points above normal. In the interior there were few excessively hot days, and on the whole the summer has been a pleasant one.

Little rain fell, and what did was in the form of afternoon showers in the Sierra and southern mountains of the State. Water was plentiful, and, while streams fell gradually, there was no lack of fresh running water in the foothills and mountains and no apprehension of scarcity for irrigation or power. The season has been a good one for all interests. Fruit ripened nicely and there was no damage by hot north winds or dry periods. The soil contained plenty of water and the snow disappeared from the 7,000-foot level by July 10. This date, however, is later by at least two weeks than the normal. July was an unusually favorable month for travel in the mountains. Tourists and pleasure seekers were able to enjoy full streams and magnificent effects in waterfalls, owing to the large volume of water from the heavy snow cover of the higher levels. Usually this condition is restricted to the month of June, and often a noticeable reduction in the volume of water occurs before the middle of that month.

One of the features of the month was a period of thunderstorm frequency, July 15 to 17. Elsewhere are given details of damage done by lightning in these mountain storms. Frequent thunderstorms were reported

also in southeastern California, one especially severe in Imperial County on July 15.

From an engineering point of view the most interesting feature of the month's weather was the abundance of water for power purposes. July, 1911, was in marked contrast with July, 1910, in this respect. Then the section reports foreshadowed a scarcity of water early in the season. There was less snow in sight than at any previous similar date since the settlement of the country and water courses contained little water. This year the run-off is excessive and streams are carrying a full head. Taken together the two months furnish important data bearing on the question of the influence of forested areas upon rainfall and run-off. The marked deficiency in run-off last summer and the marked excess this summer afford a definite and clear demonstration that in the main variations in rainfall and run-off are not controlled by or materially affected by such artificial conditions as deforestation or settlement of area, but are primarily and effectually determined by natural causes acting over large areas. It is plain that there was no change in the forest conditions or in the reclamation of land during the two years, and yet we have the extreme conditions of run-off, and rainfall or snowfall.

TEMPERATURE.

The mean temperature for the State was 74.1°, or slightly above the normal. This mean value, however, gives no indication of the unusually cool condition prevailing in the coast counties north of Point Conception during most of the month. Also it gives no clew to the generally cool character of the month in certain parts of the interior.

The following table gives the means and departures for each July from 1897 to 1911, inclusive:

Years.	Mean.	Departure.	Years.	Mean.	Departure.
	° F.	° F.		° F.	° F.
1897.....	74.5	+0.9	1905.....	74.8	+1.2
1898.....	81.4	+7.8	1906.....	76.8	+3.2
1899.....	77.9	+4.3	1907.....	73.1	-.5
1900.....	75.9	+2.3	1908.....	76.4	+2.8
1901.....	76.0	+2.4	1909.....	71.2	-2.4
1902.....	72.8	-.8	1910.....	75.5	+1.9
1903.....	71.2	-2.4	1911.....	74.1	+.5
1904.....	72.2	-1.4			

The highest temperature reported at any station was 117°, which occurred at Indio on the 15th and Palm Springs on the 30th. This was 2° lower than the highest temperature recorded during July, 1910. The lowest temperature was 28° at Tamarack on July 1. This was 6° warmer than the lowest temperature recorded during July, 1910.

PRECIPITATION.

The average monthly precipitation for the State was 0.10 of an inch. This is slightly above the normal.

The following table gives the average and departure from the normal for each July from 1897 to 1911, inclusive:

Years.	Mean.	Departure.	Years.	Mean.	Departure.
	Inches.	Inches.		Inches.	Inches.
1897.....	0.01	-0.05	1905.....	0.01	-0.05
1898.....	T.	-0.06	1906.....	.04	-0.02
1899.....	T.	-0.06	1907.....	.03	-0.03
1900.....	.03	-0.03	1908.....	.04	-0.02
1901.....	.01	-0.05	1909.....	.05	-0.01
1902.....	.70	+0.64	1910.....	.10	+0.04
1903.....	.03	-0.03	1911.....	.10	+0.04
1904.....	.09	+0.03			

The greatest monthly rainfall was 2.50 inches, at Mammoth Tank. One-half of the stations reporting had no rainfall during the month. The distribution of the rain geographically was far from uniform. Afternoon thundershowers in the mountains and a few misting rains along the north coast made up the rainfall.

Snowfall.—No snow was reported at any station in California. There probably were, however, some light falls at elevations above 10,000 feet.

SUNSHINE.

The following table gives the total hours of sunshine and percentages of the possible:

Stations.	Hours.	Percentage of possible.	Stations.	Hours.	Percentage of possible.
Eureka.....	163	36	Sacramento.....	414	92
Fresno.....	421	94	San Diego.....	251	57
Los Angeles.....	315	72	San Francisco.....	264	59
Mount Tampais.....	435	97	San Jose.....	361	81
Red Bluff.....	424	93	San Luis Obispo.....	295	67

THUNDERSTORMS.

Lightning struck Glacier Point in the Yosemite Valley during the afternoon of July 16 and killed 9 out of 18 horses tethered under a tree near the hotel. Over a score of tourists were in the hotel and had just dismounted. The storm was severe in the Wawona section, and the rainfall was so heavy that the Merced River rose to a height of 12 feet and did some damage in the Mariposa Big Tree Grove. On July 14 another thunderstorm and heavy rainfall raised the Merced River 4 feet, causing, it is said, greater flood conditions than during June, when melting snow caused an overflow over a portion of the valley. The flume carrying water to the electric-light station was put out of commission, crippling the power plant and leaving the Valley hotel and camp in darkness on July 14 and until repairs could be made.

On July 15, at El Centro, a storm of some violence, moving from the southeast, struck the section about 3.20 p. m. While the storm lasted only a few minutes, it damaged property to the extent of \$30,000. Two lives were lost by falling walls. Many people were injured. The First Presbyterian Church was entirely demolished; the warehouse of the California Cotton Co. collapsed, burying beneath its heavy timbers three Hindoolaborers, two of whom subsequently died. A feed and fuel shed collapsed and several storage and drying sheds and small

office buildings, together with some residences, were destroyed.

At Campo thunderstorms and at Sonora rains prevailed from the 3d to the 29th. On the morning of the 27th a severe electrical storm from Campo west to the coast foothills knocked down telegraph poles, killed two mules, and stunned children leaning on fences. In the afternoon a similar storm occurred from Campo east, causing heavy rain in the valleys to the east and on the desert.

At Downieville on the 15th a severe thunderstorm north and northeast was reported, with a cloudburst at Bassetts, causing a rise in the South Fork of the Yuba of about 2 feet.

At Hornbrook on the 24th a heavy thunderstorm with 2 inches of rain occurred, and on the 25th a thunderstorm with a trace of rain.

EARTHQUAKES.

July 1, San Francisco: A severe shock occurred at 2.00:05 p. m. to 2.00:25 p. m., one hundred and twentieth meridian time. It was felt in the Weather Bureau office and the time noted by Observers Scholl and Rogers. No tremulous motion was felt before the principal disturbance, and there was no rocking motion at the end. There were two well-marked vibrations, with an interval of about five seconds. The vertical motion was perceptible, the apparent direction from west to east, and the duration of sensible motion was about 20 seconds. The intensity was No. 7 on the Rossi-Forel scale. No sounds were heard and few objects were overturned.

San Jose, July 1 (Mr. Maurice Connell, observer), reports that one of the severest shocks since the memorable quake of 1906 occurred at 2.00:30 p. m. The movement seemed to be entirely vertical, which would indicate that the locus of the disturbance centered near San Jose. There was a loud roaring-like noise, but the period of active disturbance lasted not over 10 seconds. Damage was not great, plastering being loosened and some brick walls cracked.

Santa Clara, July 1, seismographic station of the Jesuit seismologic service, Rev. J. S. Rickard, S. J., director; Mr. A. J. Newlin, assistant: Most severe shock since April 18, 1906. Tracer thrown off paper, but quickly replaced. Apparently little damage done in this vicinity.

Dr. A. O. Leuschner, professor of astronomy and director of the Students' Observatory, and Mr. Strula Einarsson, instructor in practical astronomy in the University of California, Berkeley, issued a report on the earthquake of July 1, of which the following is a part:

The earthquake began without preliminary tremor at 2^h 00^m 23^s ±. The period of vertical vibration was approximately 3 seconds, indicating that the center of the earthquake was not as close as one might be tempted to suspect.

The total duration of the motion as shown by the records was roughly 27 minutes, of which 18 minutes were marked by perceptibly strong motion, 10 minutes as heavy motion, and 5 minutes by great intensity. The intensity was 5 on the Rossi-Forel scale; it was a smart shock, generally felt; furniture was shaken, and some clocks were stopped, notably the time clock of the Students' Observatory, this for the first time since the earthquake of April 18, 1906.

NOTE ON EARTHQUAKE OF JULY 1, 1911, AT MOUNT HAMILTON.

The earthquake of July 1, 1911, was in some respects the most severe one experienced since the observatory was founded. The amplitude of vibration was less than

in the shock of April 18, 1906, and the duration was much less but the motion was more violent.

Fortunately the telescopes and other instruments of the observatory suffered no injury, with the exception of the Riefler clock. The steel springs in the pendulum support of this clock were broken, allowing the pendulum to fall and break the airtight glass case. The 36-inch telescope was moved about three-quarters of an inch to the south, the great base plate slipping on the masonry pier. The telescope was put into position again promptly and without difficulty and has suffered no harm whatever.—*Prof. R. G. Aitken, Acting Director, Lick Observatory.*

NOTES ON THE RIVERS OF THE SACRAMENTO AND SAN JOAQUIN WATERSHEDS.

By N. R. TAYLOR, Local Forecaster.

SACRAMENTO WATERSHED.

There was a gradual diminution in the run-off of all streams in this watershed during the month, but all of the important watercourses carried more water than for any corresponding month during the past five years.

In the Sacramento River, above Red Bluff, there was only a slight range between the highest and lowest stages of the month, and in many of the reaches above Redding the river was practically stationary during the last half of the month. From Knights Landing, however, to the tide limits the difference between the stages of the 1st and those of the 31st of the month were more or less marked.

In the Feather-Yuba territory the rivers averaged from 2 to 2.5 feet higher than during the preceding July, and the Yuba River at Marysville was higher than in any July since 1907.

The American River averaged about 1 foot above the usual July stage and was the highest for any like month since 1907. It receded gradually from the 1st to the 31st with a range of 3 feet.

SAN JOAQUIN WATERSHED.

Except the Stanislaus, Mokelumne, and the San Joaquin, in the vicinity of Lathrop, all rivers in this watershed carried more water than for any July since the establishment of Weather Bureau gaging stations in the San Joaquin Valley. The San Joaquin in the vicinity of Firebaugh and Mendota continued above the flood stage until the 8th, but fell rapidly after this date and by the last of the month had fallen nearly 6 feet. Some lands in the vicinity of Mendota were flooded, but all interests were amply protected by the river forecasts from day to day.

PRECIPITATION AND ALTITUDE IN THE SIERRA.

By Mr. CHARLES H. LEE.

NOTE.—This article is published by courtesy of the editor of the Journal of Electricity, Power, and Gas. Mr. Lee, as one of the engineering staff of the Los Angeles Aqueduct, has carried on extensive measurements of rainfall and depth of snow on the eastern side of the high Sierra, in Inyo County, in the watershed of the Owens River. Mr. Lee has been in touch with the Weather Bureau throughout the period covered by these measurements and has in every way tried to further its work.

Precipitation studies made by the Los Angeles Aqueduct officials in connection with a general investigation of water supply conditions in the Owens Valley have led to some interesting results regarding the relation of precipitation and altitude in the Sierra Nevada. The portion of the range considered extends from Lake Tahoe to the

Mojave Desert. Data gathered and published by the United States Weather Bureau were used where available and were supplemented on the east slope of the Sierra adjacent to the Owens Valley with records kept by the aqueduct officials. The investigations were carried on by the writer under the direction of William Mulholland, chief engineer of the Los Angeles Aqueduct.

The phenomenon of increase of precipitation with altitude is fully recognized by hydraulic engineers who have had occasion to investigate the subject of precipitation. As a basis for engineering computations the relation is often assumed to be a simple ratio, which may be applied without regard to any factor but difference of elevation. As a matter of fact, however, topography, prevailing winds, latitude, and conditions of the atmosphere have a marked effect upon the geographic distribution of rainfall as well as altitude. The straight line relation, even when used as a convenient approximation, has a limited use, and should not be employed indiscriminately, as is shown by the studies herewith presented.

The general area within which precipitation data were considered is shown by the accompanying map. Upon this are indicated the principal rivers and their drainage area, stream gaging and precipitation stations, and isohyets or lines of equal annual rainfall. The isohyets are those of the Water and Forest Association as amended in 1908 by Edwin Duryea, jr. The dotted isohyets in the southeastern portion of the area are revisions proposed by the writer, based on all data available to date. The southern and eastern extension of the 30-inch and 20-inch isohyets is the most radical change, and is justified by the aqueduct observations in Owens Valley.

The relations of precipitation and topography are shown in a general manner by the position of the isohyets. A more instructive method is by graphical study of observations made in and near cross sections of the Sierra, laid out at right angles to the trend of the range. Five such were chosen and are shown on the map as the Central Pacific, Mokelumne, Taboose, Oak, and Bairs sections. There are sufficient observations taken along the two most northerly of these to indicate the relations upon both slopes of the range, but records applying to the three southerly sections are confined to the east slope.

A list of stations along the Central Pacific and Mokelumne sections is given in Table 1, together with elevation, distance from the Great Valley, length of record, observed and computed mean seasonal precipitations, and observed precipitations during the season 1909-10. The stations selected were all within 12 miles of the sections, and their elevations were such that they lay in the average profile of ground surface. (See diagrams 3 and 6.) Of stations in the Central Pacific group, Sacramento, Newcastle, Iowa Hill, Reno (1888-89 to 1909-10) and Wadsworth (1890-91 to 1909-10) are maintained by the Weather Bureau. Observations at other stations are made by agents of the Southern Pacific Co. Stations in the Mokelumne group are all maintained by the Weather Bureau. Elevations are those published in Weather Bureau reports, and where possible were compared with those given on Government topographic sheets. Distances from the Great Valley were scaled from the Government topographic or from the general land office map of California. Observed mean seasonal precipitation was computed for the season, September 1 to August 31. The observed means are for periods of differing length, and to obtain values more strictly comparable the records were computed so as to apply to a single definite period. That selected for the Central Pacific group extended over the

40 seasons, 1870-71 to 1909-10; and for the Mokelumne group, the 28 seasons, 1882-83 to 1909-10. The method of correcting a short record was the common one of comparison with an adjacent station having a complete record.

Stations in the Taboose, Oak, and Bairs groups were established and maintained by the aqueduct officials. They are listed on Table 3 with elevation, distance from the Sierra crest, with observed and computed mean seasonal precipitation. The gages were located on or near the sections at the approximate crossings of 500-foot contours. The immediate surroundings were selected with respect to accessibility from roads and trails, and the recognized requirements for good exposure were observed. The highest level on the slope of the Sierra which can be reached from the Owens Valley after the winter snowstorms is approximately the 6,500-foot contour. Gages were distributed between this contour and the valley floor, which, near Independence, has an average elevation of 3,800 feet. The type of gage used was the ordinary 8-inch cylindrical gage of the Weather Bureau. The funnel-shape receiver, however, was dispensed with, so that the catch fell directly into the 8-inch cylinder. The mounted observer carried the inner tube and cedar measuring stick and poured the catch from the container into the small tube for measuring. Snow was reduced to equivalent water by weighing the catch with a spring balance.¹ The gages were visited after each storm, an observer being detailed to each group, and snowshoes were part of the necessary equipment in winter. The exact elevation and location of the gages were determined by ordinary engineering methods. Distances from the Sierra crest were scaled from the Mount Whitney quadrangle of the United States Geological Survey. The 26-year record at Independence, which was used as a basis for computing long-term means, is given in Table 4. The portion of this record from September, 1866, to August, 1877, was obtained under the direction of United States Army officers stationed at Fort Independence, and under conditions sufficiently similar to permit

of its being combined with the more recent Weather Bureau record at the present town of Independence.

The relations of precipitation, altitude, and topographic position, and also profiles of ground surface, are based on United States Geological Survey topographic maps and are shown for each of the accompanying charts. The values represented by numbered points are those given in Tables 1, 2, and 3. The points at the upper end of curves for Taboose, Oak, and Bairs sections need further explanation, however. As previously noted, it was not practical to make complete precipitation observations above the 6,500-foot contour in Owens Valley. An attempt has been made, however, to arrive at approximate values for precipitation along the adjacent Sierra crest from computations based on measured stream flow. Data available were the true run-off from the east slope of the Sierra, measured at mouths of canyons, and an approximate value of the run-off factor. The mean seasonal discharge per square mile of mountain drainage areas crossed by the Taboose and Oak sections is 1.75 second-feet, and by the Bairs section, 1.36 second-feet. The run-off factor for Kings River, which is adjacent to Owens Valley drainage on the west, is 0.59. Computations for the latter are based on the isohyets of Plate 1; observed variation in precipitation at Merced, Fresno, Sanger, Selma, Visalia, and Summerdale, and the discharge measurements of Kings River at Red Mountain, covering 20 seasons. Run-off factors for the small drainage areas tributary to Owens Valley are probably larger than for Kings River, for the following reasons: The greater average elevation of drainage areas tributary to Owens Valley; nonporous character of the granite bedrock; the universal occurrence of deep cirques and canyons which favor the collection of snow in protected drifts; the snow dust carried over the Sierra crest into the cirque basins by prevailing west and northwest winds; and the absence of lake surfaces or extensive areas supporting vegetation. All of these characteristics tend to make the run-off greater than for Kings River by decreasing evaporation and percolation losses. A value of 0.75 is thought to correctly represent run-off conditions for the Owens Valley streams.

¹ The editor is under the impression that this is the Marvin density bucket, which was furnished to Mr. Lee by the San Francisco office.

TABLE 1.—DESCRIPTION AND MEAN PRECIPITATION FOR STATIONS IN CENTRAL PACIFIC GROUP.

No. of gage.	Station.	Elevation above sea level.	Distance from Sac- ramento.	Length of record years.	Observed mean sea- sonal pre- cipitation.	Computed mean seasonal precipitation.			Observed precipita- tion, 1909-10.
						Base station.	Number of years cov- ered.	Precipita- tion.	
		<i>Feet.</i>	<i>Miles.</i>		<i>Inches.</i>			<i>Inches.</i>	<i>Inches.</i>
1	Sacramento.....	71		61	19.50	Sacramento.....	40	19.36	12.18
2	Rocklin.....	249	18.9	8	28.45	Auburn.....	40	24.65	21.06
3	New Castle.....	956	26.3	15	32.32	do.....	40	28.20	26.92
4	Auburn.....	1,363	30.0	40	34.93	do.....	40	34.93	36.12
5	Colfax.....	2,421	42.1	40	49.01	Colfax.....	40	49.01	49.69
6	Iowa Hill.....	2,825	46.8	31	52.64	do.....	40	50.53	50.68
7	Gold Run.....	3,222	48.8	11	54.49	Alta-Towle.....	40	45.05	48.34
8	Towle (Alta).....	3,612	52.8	40	49.15	do.....	40	49.15	53.02
9	Blue Canyon.....	4,095	58.5	11	72.82	do.....	40	57.55	64.11
10	Emigrant Gap.....	5,230	61.7	30	53.50	Cisco.....	40	54.50	56.28
11	Cisco.....	5,939	67.9	40	51.96	do.....	40	51.96	58.85
12	Summit.....	7,017	78.6	39	48.00	do.....	40	47.60	57.00
13	Truckee.....	5,820	85.8	39	27.65	Truckee.....	39	27.65	25.01
14	Boca.....	5,531	92.0	38	20.47	Boca.....	38	20.47	25.93
15	Reno.....	4,484	110.1	39	7.05	Reno.....	39	7.05	7.52
16	Wadsworth (Fernley).....	4,084	138.4	35	4.59	Wadsworth.....	35	4.59	5.17

Stations 1 to 12, inclusive, seasonal totals (Sept. 1 to Aug. 31).

Stations 13 to 16, inclusive, calendar year totals, except last column.

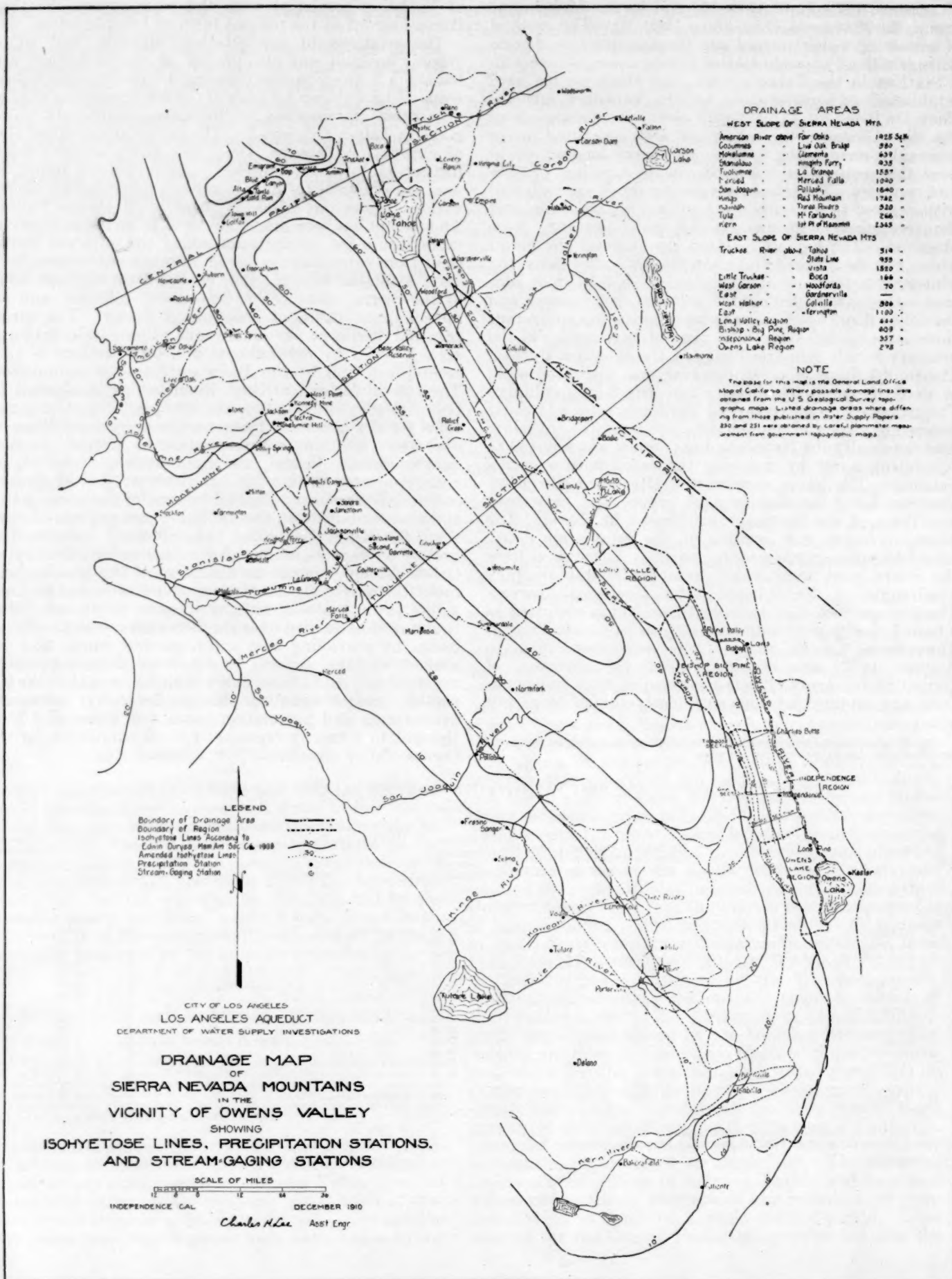


TABLE 2.—DESCRIPTION AND MEAN PRECIPITATION FOR STATIONS IN MOKELUMNE GROUP.

No. of gage.	Station.	Elevation above sea level.	Distance from Stockton.	Length of record years.	Observed mean seasonal precipitation.	Computed mean seasonal precipitation.			Observed precipitation, 1909-10.
						Base station.	Number of years covered.	Precipitation.	
		Feet.	Miles.		Inches.			Inches.	Inches.
1	Stockton.....	23		60	15.31	Stockton.....	28	14.82	13.81
2	Farmington.....	111	13.0	33	16.47	Farmington.....	28	16.73	15.91
3	Ione.....	287	33.0	32	21.03	Ione.....	28	21.33	20.39
4	Valley Springs.....	673	31.2	22	24.71	Stockton.....	28	24.18	23.28
5	Jackson.....	1,200	40.0	20	33.19	Jackson.....	20	33.19	
6	Mokelumne Hill.....	1,550	41.0	28	32.53	Mokelumne Hill.....	28	32.53	32.93
7	West Point.....	2,800	52.8	16	42.50	do.....	28	41.15	39.56
8	Bear Valley Reservoir.....	5,800	72.5	7	63.35	do.....	28	57.65	
9	Tamarack.....	8,012	89.5	11	57.23	do.....	28	54.73	48.94
10	Gardnerville.....	4,830	108.5	11	8.93	do.....	28	9.08	16.57
11	Wabuska.....	4,347	141.5	7	3.70	do.....			3.49

TABLE 3.—PRECIPITATION STATIONS IN OWEN VALLEY.

No. of gage.	Group.	Elevation above sea level.	Distance from crest of Sierra Nevada Mountains.	Observed precipitation, in inches.		Computed mean seasonal precipitation based on 26-year record at Independence.
				Season 1908-9.	Season 1909-10.	
		Feet.	Miles.			
2	Taboose.....	4,070	8.1	9.09	6.65	6.56
3	do.....	4,460	6.9	10.40	7.61	7.51
4	do.....	5,040	5.5	11.74	8.69	8.53
5	do.....	5,550	4.7	16.53	9.26	10.48
6	do.....	6,190	4.2	23.24	12.94	14.69
18	Oak.....	3,735	13.8		3.15	3.25
17	do.....	3,775	12.5		4.25	4.38
7	do.....	3,940	9.6	7.22	4.45	4.78
8	do.....	4,300	8.4	9.24		6.37
8A	do.....	4,500	8.0		5.27	5.43
9	do.....	5,030	6.6	11.35	6.42	7.22
10	do.....	5,590	5.7	14.47	7.67	8.94
11	do.....	6,120	4.8	21.04	10.19	12.51
12	Bairs.....	4,100	10.2	4.28	3.74	3.40
13	do.....	4,500	9.0	6.09	3.63	3.97
14	do.....	5,000	7.7	7.63	5.34	5.38
15	do.....	5,500	6.6	11.67	5.94	7.08
16	do.....	6,100	5.7	14.34	7.24	8.68

TABLE 4.—PRECIPITATION, IN INCHES, AT INDEPENDENCE, CAL.

1865-1877, United States War Department, Fort Independence. Elevation, 3,930 feet.
 1832-1895 and 1898-1910, United States Weather Bureau, Independence. Elevation, 3,920 feet.

Season.	Septem-ber.	October.	Novem-ber.	Decem-ber.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
1865-66.....			0	.65	2.42	0	0	.16					
1866-67.....	0	.32	0	2.27	0	1.63	4.76	.53	.76	0	.01	1.15	11.43
1867-68.....	.07	.32	.21	12.19	5.46	0	0	.40	.71	0	.10	0	19.46
1868-69.....	0	.74	.44	1.17	.16	0	.32	.11	.36	0	.03	0	3.33
1869-70.....	0	0	.14	0	.20	1.36	0	.21	.27	0	.35	.10	2.63
1870-71.....	0	1.10	0	1.00	0	1.28	0	0	0	.30	0	0	3.68
1871-72.....	0	0	.65	4.70	0	.30	.28	.55	.18	0	.28	.12	7.06
1872-73.....	0	0	0	1.18	0	.40	0	0	0	0	0	.05	1.63
1873-74.....	.10	0	0	3.40	2.40	1.00	0	0	0	.01	.15	0	7.06
1874-75.....	.40	.80	.40	0	1.73	0	0	0	0	0	0	0	3.33
1875-76.....	.01	0	.66	.62	1.51	.70	.87	0	0	.15	.19	.56	5.27
1876-77.....	.16	.26	0	0	.76	0	0	.59	.69	0	0	0	2.46
1891-92.....							.02		.96	.07	T.	T.	
1892-93.....	0	.35	.23	1.61	1.51	2.91	.98	.02	T.	.10	.77	T.	8.38
1893-94.....	T.	0	.10	.75	.12	.42	.09	.02	.10	.11	.12	.51	2.34
1894-95.....	T.	0	0	1.89	1.24	1.18	.12	T.	.01	T.	T.	.04	4.48
1895-96.....	T.	.83	.67	.08	1.67	0	0						
1896-97.....							0	.16	.23	T.	T.	.11	
1897-98.....							.01	.02	.03	.37	.01	.06	1.54
1898-99.....	.20	0	.10	.20	.54	T.	.05	.67	.22	.04	.08	T.	3.70
1899-1900.....	T.	.30	.85	.56	.31		.64	.05	.36	0	.10	.32	6.51
1900-1901.....	.75	.01	1.34	.13	2.81	.64	1.05	.17	.04	.01	.17	.33	4.23
1901-2.....	0	.65	.22	.06	.04	1.69	.34	.19	T.	.02	0	0	2.06
1902-3.....	T.	.08	.41	.04	.71		.95	T.	.02	0	T.	.07	2.66
1903-4.....	T.	.42	T.	0	T.	1.20	.73	T.	.25	0	0	T.	3.98
1904-5.....	.32	.06	0	T.	.54	.13	1.86	.36	.42	.10	.31	.04	6.79
1905-6.....	.25	0	.43	T.	.84	.95	1.10	.14	.01	.55	T.	0	4.17
1906-7.....	0	0	.02	.84	.42	1.63	.16	T.	T.	T.	.26	.46	6.01
1907-8.....	0	2.12	T.	.42	3.27	2.73	.12	.31	0	0	0	.25	7.61
1908-9.....	.84	.03	.01	.20	.25	T.	.10					0	5.10
1909-10.....	.07	.01	.19	3.90									
26-year mean.....	.12	.29	.25	1.43	1.12	.77	.61	.17	.17	.06	.12	.15	5.26

CENTRAL PACIFIC GROUP of PRECIPITATION GAGES.

DIAGRAM N° 1 - RELATION OF ALTITUDE AND PRECIPITATION

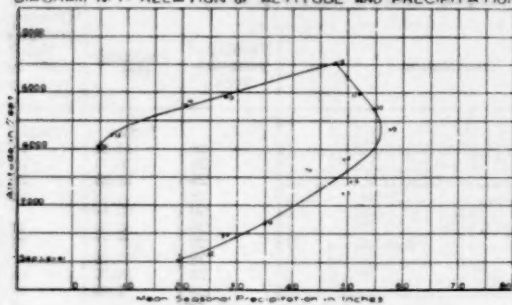


DIAGRAM N° 2 - RELATION OF TOPOGRAPHIC LOCATION AND PRECIPITATION

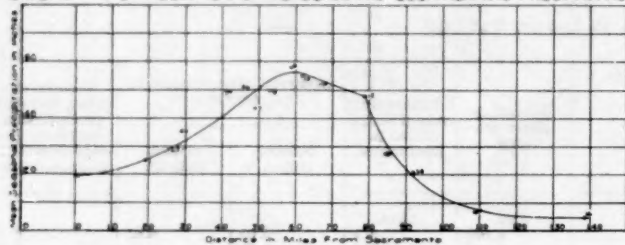
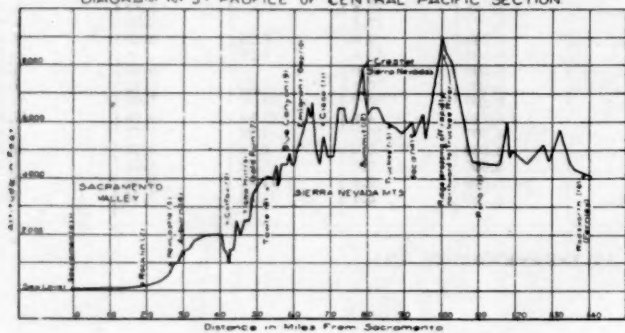


DIAGRAM N° 3 - PROFILE OF CENTRAL PACIFIC SECTION



MOKELUMNE GROUP of PRECIPITATION GAGES.

DIAGRAM N° 4 - RELATION OF ALTITUDE AND PRECIPITATION

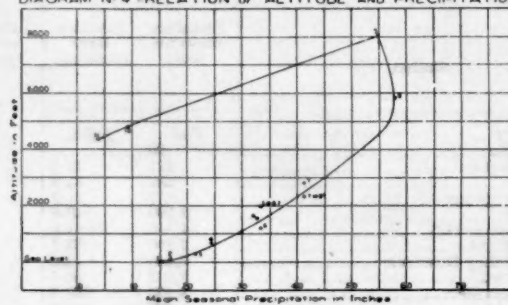


DIAGRAM N° 5 - RELATION OF TOPOGRAPHIC LOCATION AND PRECIPITATION

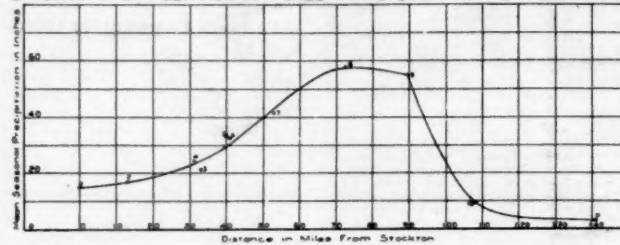
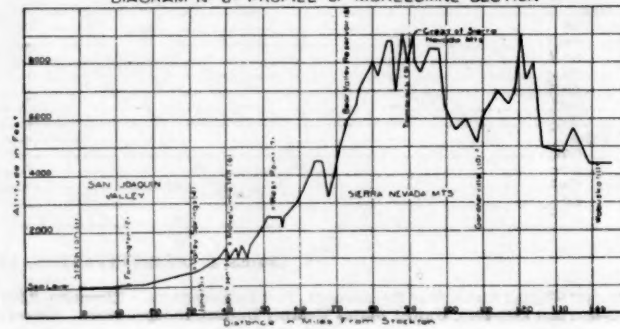


DIAGRAM N° 6 - PROFILE OF MOKELUMNE SECTION



TABOOSE GROUP OF PRECIPITATION GAGES

DIAGRAM N° 7 - RELATION OF ALTITUDE AND PRECIPITATION

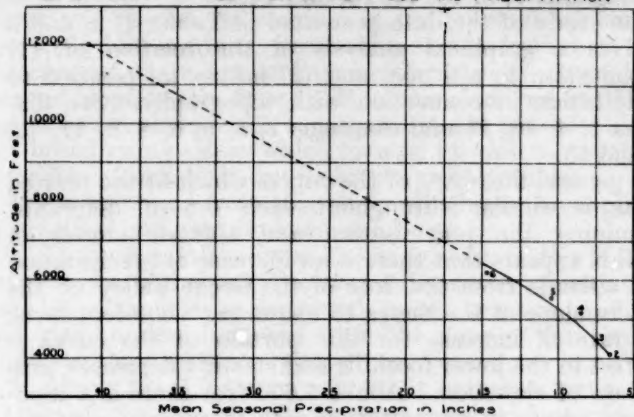
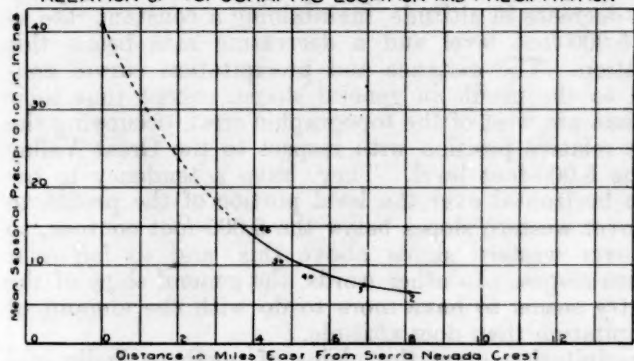
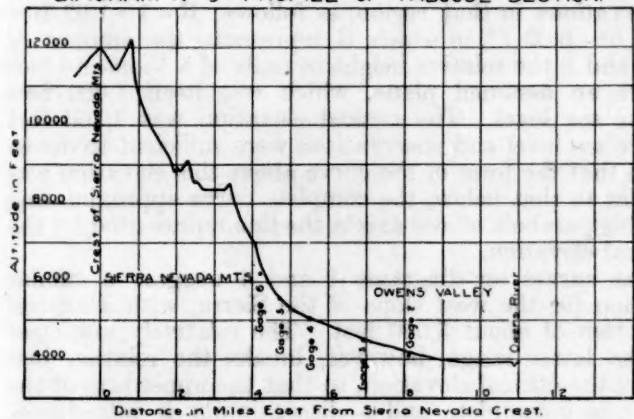
DIAGRAM N° 8
RELATION OF TOPOGRAPHIC LOCATION AND PRECIPITATION

DIAGRAM N° 9 - PROFILE OF TABOOSE SECTION.



OAK GROUP OF PRECIPITATION GAGES

DIAGRAM N° 10 - RELATION OF ALTITUDE AND PRECIPITATION

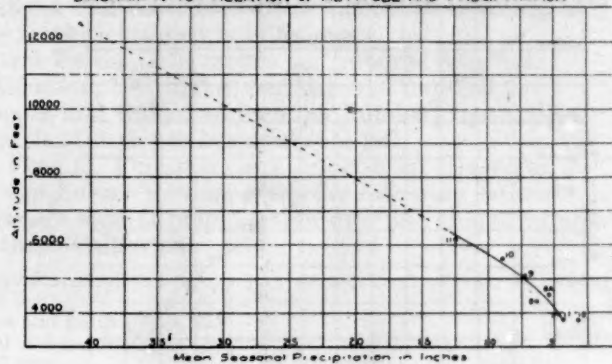
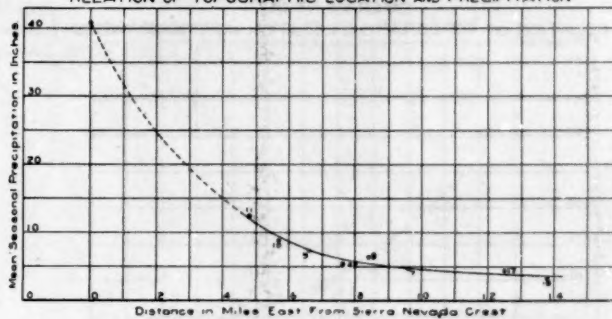
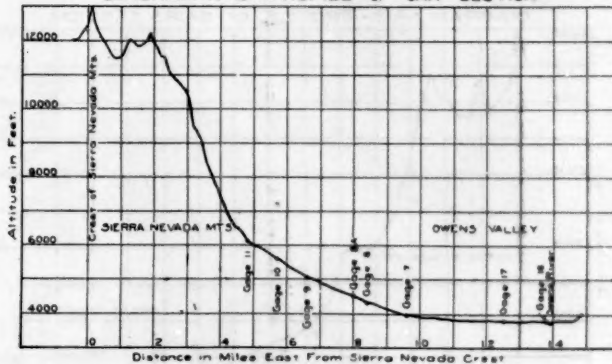
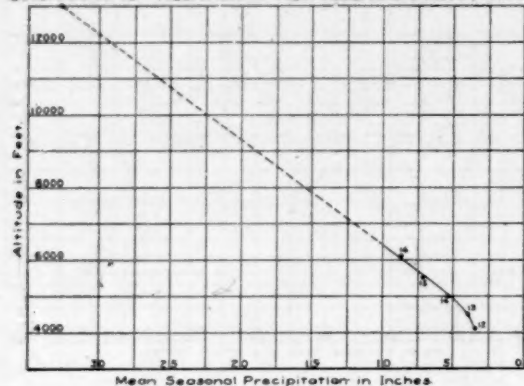
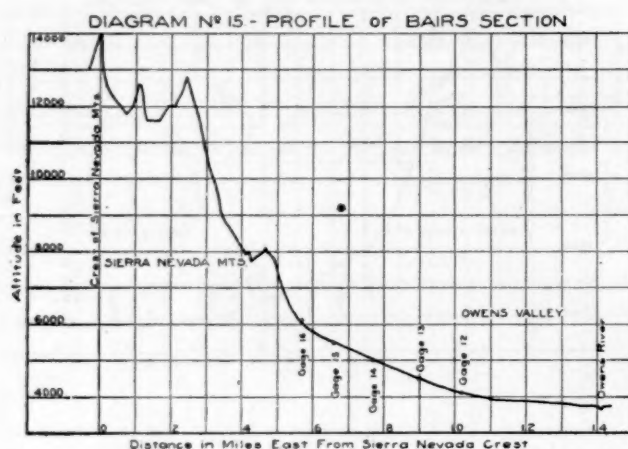
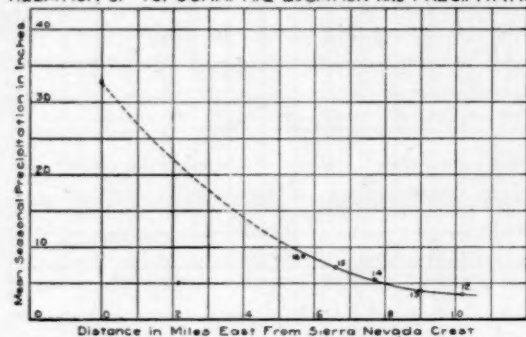
DIAGRAM N° 11
RELATION OF TOPOGRAPHIC LOCATION AND PRECIPITATION

DIAGRAM N° 12 - PROFILE OF OAK SECTION



BAIRS GROUP OF PRECIPITATION GAGES.

DIAGRAM N° 13 - RELATION OF ALTITUDE AND PRECIPITATION

DIAGRAM N° 14
RELATION OF TOPOGRAPHIC LOCATION AND PRECIPITATION

The shape of many of the mountain drainage areas tributary to the Owens Valley is that of an isosceles triangle with apex at canyon mouth and base lying along the Sierra crest. Measuring from the Sierra crest and assuming a uniform rate of change of precipitation from crest to canyon mouth, as indicated by the observations in the Central Pacific and Mokelumne sections, the average precipitation over one of these triangles equals the true precipitation at one-third the distance between these two points. The observed precipitation at canyon mouths being available, it is therefore a matter of simple proportion to compute that at the crest. The average depth of precipitation over drainage areas having run-off factors of 0.75 and discharges per square mile of 1.75 and 1.36 second-feet is 31.7 and 24.6 inches, respectively. Employing the method of computation outlined

above, the values for precipitation at the Sierra crest are 40.8 inches for the Taboose and Oak sections and 32.7 for the Bairs section. These are the points not numbered on diagrams 7, 8, 10, 11, 13, and 14.

The study of the data presented in Tables 1, 2, and 3 involves a graphical analysis of the relation of: (1) Precipitation to altitude; and (2) horizontal position to precipitation in connection with topography. See diagrams 1, 4, 10, 13 and diagrams 2, 3, 5, 6, 8, 9, 11, 12, 14, and 15.

In general the shape of the curves which fit the plotted points is similar throughout each set of diagrams. Examining the precipitation and altitude curves in detail it appears that there is an increase of precipitation with altitude from the floor of the Great Valley up the western slope of the Sierra to about the 5,000-foot level. The rate of increase for this portion of the curve is greatest in the lower foothills and steadily decreases with increase of elevation. Above 5,000 feet there is a moderate decrease in precipitation with increase of altitude, the rate being practically constant.¹

East of the Sierra crest precipitation decreases rapidly with decrease in altitude, maintaining a constant rate to the 5,000-foot level and a decreasing rate below this elevation. The distance and precipitation curves conform to the profile in general shape, except that their maxima are west of the topographic crest, occupying the same relative position with respect to the Great Valley as the 5,000-foot level. They have a tendency to become horizontal over the level portion of the profile, to rise over western slopes below the 5,000-foot contour, to fall over western slopes above this, and to fall over eastern slopes. In other words, the general slope of the country seems to have more to do with the amount of precipitation than does altitude.

Precipitation upon the plains of northern India and the southern slope of the Himalayas exhibits a similar variation. An empirical equation giving the relation of precipitation and elevation has been developed from observations in that region, as follows: $R = 1 + 1.92 h - 0.40 h^2 + 0.02 h^3$, in which R represents the amount of rain and h the relative height in units of a thousand feet above an assumed plane, which was itself 1,000 feet above sea level. The critical elevation was 4,160 feet above sea level and observations were sufficient to determine that the form of the curve above this elevation was similar to that below, the complete curve approximating a cubic parabola whose axis is the line represented by the critical elevation.

The curves on diagrams 1 and 4 suggest a similar relation for the west slope of the Sierra, with a critical elevation of about 5,000 feet. The relatively low crest of the latter range, however, breaks the relation just above the critical elevation, so that the upper arm of the curve is incomplete and a discontinuity is introduced. The relation of precipitation to elevation upon the Sierra is therefore not unique, but conforms to some general law.

The condition met with is the broad slope of a long mountain range presented to a prevailing moisture-laden wind. The movement of a body of moist air up such a slope results in expansion and cooling of the air. When the temperature reaches the dew point condensation of the aqueous vapor occurs. The latent heat thus liberated tends to warm the air and raises its temperature

¹ Reference should be made to various papers by McAule and Willson, in *Monthly Weather Review and Climatology of California*; also to papers by Lippincott, Clapp, and others in various *Water Supply Papers*.

above the dew point. The descent on the leeward slope of the range is accompanied by a rapid compression and rising temperature of a body of air. Hence, precipitation is greatest along the lower windward slopes of the Sierra and reaches its maxima at the lower cloud limit, the 5,000-foot contour, decreasing slowly from here to the crest of the range and decreasing rapidly down the leeward slope to the desert. It is, therefore, not increasing elevation alone which causes increase in precipitation; but broad rising slopes which give an upward movement to bodies of moist air driven by prevailing winds.

The conclusions from this study which can be applied in practical computations are as follows:

1. The precipitation upon the west slope of the Sierra between the Yuba and Tuolumne Rivers increases at a variable rate, which, expressed as an average, is 0.85 inch per hundred-foot rise from the floor of the Great Valley to the 5,000-foot contour.

2. Above the 5,000-foot contour it decreases approximately at the rate of 0.40 inch per hundred-foot rise to the crest of the Sierra.

3. Precipitation upon the east slope of the Sierra decreases at differing rates, depending upon the elevation of the crest and depth of precipitation at the summit. The rate is constant above the 5,000-foot contour, and for the sections studied is as follows:

Central Pacific, 1.74 inches per hundred foot fall.

Mokelumne, 1.43 inches per hundred foot fall.

Taboose and Oak, 0.46 inch per hundred foot fall.

Bairs, 0.34 inch per hundred foot fall.

Mr. Fred G. Plummer, in a bulletin on chaparral, No. 85, of the Forest Service, gives the following estimate of the average annual precipitation over the chaparral area in southern California:

At sea level.....	13 inches.
At 2,000 feet:	
West and south slopes, 25)	
East and north slopes, 9)	17 inches.
At 5,000 feet:	
West and south slopes, 43)	
East and north slopes, 27)	35 inches.
At 8,000 feet:	
West and south slopes, 61)	
East and north slopes, 45)	53 inches.

TABLE 1.—Climatological data for July, 1911. District No. 11, Oregon.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of overcast days.
Oregon.																				
Klamath Agency	Klamath	4,169	3																	Edson C. Watson.
Klamath Falls	do.	4,100	22																	W. H. Heileman.
Lakeview	Lake	4,825	28																	Bert Rice.
Merrill	Klamath	4,070	5	65.4		94	16	33	8	43	0.17		0.15	0	2	25	5	1		Mrs. Agnes Ritchson.
Yonah	do.	4,146	4	64.4		96	16	28	1	58	0.13		0.12	0	2	16	10	5	w.	Jacob Ruecke.
California.																				
Alameda	Alameda		1	62.4		84	1	52	17	32	T.		T.	0	0	9	19	3	nw.	Chas. E. Sears.
Alturas	Modoc	4,460	7	68.0		101	16	34	17	55	0.97		0.55	0	4	21	10	0	sw.	Prof. C. B. Towle.
Angiola	Tulare	208	11	82.2	+ 4.3	105	157	50	1	49	0.00	0.00	0.00	0	0	31	0	0	nw.	Santa Fe Co.
Antioch	Contra Costa	46	32	84.6	+ 8.8	102	16	60	5		0.00	0.00	0.00	0	0	31	0	0	e.	Southern Pacific Co.
Aptos	Santa Cruz	102	26	61.8	- 0.5	76	16	52	3		0.00	- 0.01	0.00	0	0	20	8	3	nw.	Do.
Arrowhead Springs	San Bernardino	2,000	2	80.6		103	30	53	1	37	0.00		0.00	0	0					Dr. E. Soegaard.
Auburn	Placer	1,360	40	75.2	- 1.6	106	157	53	17	47	0.00	- 0.02	0.00	0	0	30	0	1		Southern Pacific Co.
Avalon	Los Angeles		1	64.3		81	14	55	11	22	T.		T.	0	0	30	1	0	w.	T. S. Manning.
Azusa	do.	540	9	76.2		106	15	51	28	54	0.00		0.00	0	0	30	0	1	sw.	A. P. Griffith.
Bagdad	San Bernardino	784	8	97.4		115	167	81	2	28	0.00		0.00	0	0					Santa Fe Co.
Bakersfield	Kern	404	22	83.4	- 5.2	105	14	57	1	36	0.00	- 0.02	0.00	0	0					Do.
Barstow	San Bernardino	2,105	8	87.0		111	16	62	9	44	0.36		0.36	0	1	31	0	0	w.	E. L. White.
Berkeley	Alameda	317	24	59.6	- 1.4	82	1	52	37	27	T.	- 0.04	T.	0	0	7	13	11	sw.	State University.
Biggs	Butte	98	12	79.1	+ 0.4	109	16	58	20		0.00	0.00	0.00	0	0	31	0	0	s.	Southern Pacific Co.
Bishop	Inyo	4,450	16	72.5	- 0.4	95	16	47	1	45	0.18	+ 0.07	0.13	0	2	22	4	5		W. A. Chalfant.
Bishop Creek	do.	8,500	1	61.2		78	97	39	1	34	0.00		0.00	0	0	11	0	20		Paul E. Lodge.
Blackburg	Humboldt	1,700	5	71.2		105	17	46	21	52	0.00		0.00	0	0	28	0	3	nw.	Victor Hope.
Blue Canon	Placer	4,695	12	67.9	+ 1.9	90	167	44	22	35	0.00	0.00	0.00	0	0	27	0	4		Southern Pacific Co.
Blythe	Riverside		2	88.2		113	15	65	29	45	1.04		0.58	0	4	21	9	1	sw.	Ray W. Ward.
Branscomb	Mendocino	2,000	11	71.0		101	15	39	20	45	T.	- 0.13	T.	0	0	26	5	0	n.	A. J. Haun.
Brawley	Imperial	-105	2	90.3		114	30	69	27	38	0.45		0.45	0	1					M. D. Witter.
Brush Creek	Butte	2,140	7	79.3		105	157	50	17	51	T.		T.	0	0	27	2	2	n.	Cal. Gas & Elec. Co.
Burney	Shasta	3,300	1	66.8		98	16	35	1	49	T.		T.	0	0	20	10	1	sw.	Mrs. M. D. Chambers.
Calxico	Imperial	0	6	90.3		113	15	72	37	38	0.33		0.25	0	2	14	6	11	se.	J. E. Peck.
Caliente	Kern	1,290	35																	Southern Pacific Co.
Calistoga	Napa	363	39	73.6	+ 1.0	102	16	55	1		0.00	- 0.02	0.00	0	0	31	0	0		Do.
Campbell	Santa Clara	217	14	64.2	- 0.7	91	1	42	107	48	0.00	0.00	0.00	0	0	31	0	0	nw.	F. M. Righter.
Camptonville (near)	Yuba	3,500	4	80.0		106	157	54	7	42	0.00		0.00	0	0	30	0	1		Cal. Gas & Elec. Co.
Cedarville	Modoc	4,675	17	70.4	+ 1.2	94	16	40	8	41	0.37	+ 0.07	0.18	0	3	20	11	0	sw.	T. H. Johnstone.
Chico	Butte	189	41	79.4	- 4.5	110	16	46	12	52	0.00	- 0.04	0.00	0	0	28	0	3	s.	G. H. Stephenson.
China Flat	Humboldt	600	2	77.2		112	16	46	17	55	0.00		0.00	0	0	26	4	1	s.	O. I. Westberg.
Chino	San Bernardino	714	19																	Southern Pacific Co.
Cisco	Placer	5,939	40	67.3	+ 4.1	89	177	45	1		0.00	- 0.03	0.00	0	0	25	1	5		Do.
Claremont	Los Angeles	1,200	19	75.0	+ 3.4	105	257	50	5	47	0.01	- 0.02	0.01	0	1	22	6	3	w.	F. P. Brackett.
Cloverdale	Sonoma	340	8	70.2		101	87	44	22	55	T.		T.	0	0	31	0	0	s.	John O. Ogle.
Colfax	Placer	2,421	40	77.0	+ 1.7	101	17	53	1	33	0.00	- 0.03	0.00	0	0	24	4	3	n.	Southern Pacific Co.
Colusa	Colusa	60	8	77.1		105	16	51	20	38	T.	0.00	T.	0	0	29	2	0	s.	C. D. McCormish.
Corning	Tehama	277	25	92.0	+ 8.6	111	16	75	11		0.00	0.00	0.00	0	0	24	7	0	s.	Southern Pacific Co.
Cuyamaca	San Diego	4,677	12	71.2	+ 6.2	90	307	55	87	31	0.64	+ 0.27	0.34	0	6	13	15	3	e.	L. L. Macquarie.
Daunt	Tulare	4,000	4	74.0		100	15	45	1	42	0.10		0.10	0	1	25	5	1		D. L. Wishon.
Davisville	Yolo	51	39	74.2	- 3.7	110	16	40	8	55	0.00	- 0.02	0.00	0	0	23	4	4	sw.	S. H. Beckett.
Dear Creek	Nevada	3,700	4	66.7		93	157	40	22	42	T.		T.	0	0	28	3	0	w.	Cal. Gas & Elec. Co.
Del Monte	Monterey		26	61.1		75	10	48	1	25	0.00		0.00	0	0	26	0	5	w.	H. R. Warner.
Delta	Shasta	1,138	26																	Southern Pacific Co.
Denair	Stanislaus	126	11	76.4	+ 0.3	105	16	50	17	48	0.00	0.00	0.00	0	0	26	4	1	nw.	Santa Fe Co.
Dobbins	Yuba	1,650	7	81.2		106	16	60	207	36	0.00		0.00	0	0	26	5	0	s.	Cal. Gas & Elec. Co.
Dudleys	Mariposa	3,000	2	70.2		97	16	42	1	45	T.		T.	0	0	22	5	4	nw.	W. H. Dudley.
Dunnigan	Yolo	65	34	90.6	+ 8.8	106	16	62	20		0.00	- 0.00	0.00	0	0	29	1	1	n.	Southern Pacific Co.
Dunsmuir	Siskiyou	2,285	22	73.2	+ 3.7	111	16	54	21		1.94	+ 1.68	1.00	0	2	29	0	2	n.	Do.
Durham	Butte	160	16	79.5	+ 0.1	109	13	51	20	47	T.	- 0.05	T.	0	0	25	6	0	s.	R. W. Durham.
El Cajon	San Diego	482	12	73.0	+ 1.7	104	31	50	27	46	0.06	- 0.04	0.06	0	1	29	2	0	sw.	H. H. Kessler.
Electra	Amador	725	7	82.2		114	157	52	207	52	0.00		0.00	0	0	30	1	0		Cal. Gas & Elec. Co.
Elsinore	Riverside	1,234	16	77.7	- 0.7	110	307	48	3	53	0.00	- 0.02	0.00	0	0	24	5	2	w.	A. F. Schult.
Emigrant Gap	Placer	5,236	37	72.3	+ 4.8	93	167	48	17	34	0.00	- 0.03	0.00	0	0	27	1	3		Southern Pacific Co.
Escondido	San Diego	657	17	72.4	- 0.1	104	31	51	1	50	0.11	+ 0.11	0.11	0	1	3	28	0	w.	A. R. Moon.
Eureka	Humboldt	64	25	53.8	- 1.5	64	25	46	8	12	0.00	- 0.09	0.00	0	0	3	15	13	n.	U. S. Weather Bureau.
Farmington	San Joaquin	111	32	81.4	+ 3.2	106	16	63	12		T.	0.00	T.	0	0	28	3	0	nw.	Southern Pacific Co.
Folsom	Sacramento	252	39	79.0	- 2.9	108	16	52	207	42	T.	- 0.01	T.	0	0	29	1	1	s.	F. O. Hutton.
Fordyce Dam	Nevada	6,500	16	63.0		88	157	39	7	39	0.15	- 0.05	0.15	0	1	21	10	0	sw.	E. E. Roening.
Fouts Springs	Colusa	1,550	7	74.8		103	16	45	1	49	T.		T.	0	0					A. J. Burgl.
Fresno	Fresno	293	24	84.0	+ 2.0	111	16	58	21	41	T.	0.00	T.	0	0	26	4	1	w.	U. S. Weather Bureau.
Fruto	Glenn	624	22	85.2	+ 2.7	114	16	64	20		0.00	0.00	0.00	0	0	31	0	0	s.	Southern Pacific Co.
Galt	Sacramento	49	33																	Do.
Georgetown	Eldorado</																			

TABLE 1.—Climatological data for July, 1911. District No. 11—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
California—Continued.																					
King City.	Monterey	333	24																	Southern Pacific Co.	
Lake Eleanor.	Tuolumne	4,700	1	69.0		95	15	41	1	44	T.		T.	0	0	22	8	1	s.	O. J. Todd.	
La Porte.	Plumas	5,000	17	66.0	+ 3.5	95	19	38	3	42	T.	- 0.25	T.	0	0	29	1	1	n.	Chas. W. Hendel.	
Le Grand.	Merced	255	11	82.0	+ 3.6	110	15†	52	22	47	0.00	0.00	0.00	0	0	30	0	1	...	Santa Fe Co.	
Lemon Cove.	Tulare	600	16	83.1	+ 2.8	115	16	60	8†	47	0.00	- 0.01	0.00	0	0	25	4	2	w.	G. W. Sandidge.	
Lick Observatory.	Santa Clara	4,209	22																	The Director.	
Livermore.	Alameda	485	40	71.9	+ 1.8	107	25	48	22	56	T.	- 0.01	T.	0	0	27	3	1	w.	E. G. Still.	
Lodi.	San Joaquin	45	29	73.7	+ 0.0	100	16	47	21	42	0.00	0.00	0.00	0	0	30	1	0	w.	Ezra Fiske.	
Lone Pine.	Inyo	2,728	6	77.0		98	6†	53	1	39	T.		T.	0	0	19	12	0	s.	G. F. Marsh.	
Long Valley.	Lassen	4,400	2	73.8		97	5	44	9	47	1.63		1.25	0	0	2	16	4	11	sw.	A. G. Evans.
Los Angeles.	Los Angeles	293	34	69.4	+ 2.0	93	15	55	28	30	T.	- 0.02	T.	0	0	13	15	3	sw.	U. S. Weather Bureau.	
Los Banos.	Merced	121	24	83.0	+ 1.5	108	14	65	20		0.00	- 0.01	0.00	0	0	27	0	4	w.	Southern Pacific Co.	
Los Gatos.	Santa Clara	600	24	67.8	+ 0.1	92	1†	48	30	44	T.	0.00	T.	0	0	30	1	0	n.	F. H. McCullagh.	
McCloud.	Siskiyou	3,410	1	66.8		93	16	36	1	43	0.68		0.58	0	0	26	5	0	s.	F. F. Spencer.	
Macdoel.	do.	4,258	4	65.2		98	16	30	1	49	1.48		1.03	0	0	2	17	9	sw.	Butte Valley Land Co.	
Madeline.	Lassen	5,270	2	63.6		88	12	35	7	50	0.25		0.10	0	0	4	16	9	w.	J. H. Williams.	
Magalia.	Butte	2,321	37	76.8		105	16	53	20	41	0.00		0.00	0	0	30	0	1	se.	Butte Co. R. R. Co.	
Mammoth Tank.	Imperial	257	33	92.8	- 5.7	116	31	70	22	39	2.50	+ 2.44	1.50	0	0	2	19	9	3	w.	Southern Pacific Co.
Marysville.	Yuba	67	40	78.4	- 1.6	107	16	52	20†	49	0.00	0.00	0.00	0	0	30	0	1	s.	Do.	
Mecca.	Riverside	-185	5	90.4		116	15†	66	8	38	0.15		0.15	0	0	1	17	13	1	se.	E. A. Palmer.
Menlo Park.	San Mateo	64	33	67.1	- 0.6	92	3	52	21		0.00	- 0.01	0.00	0	0				...	Southern Pacific Co.	
Merced.	Merced	173	7	80.8	- 0.9	105	16	62	22	37	0.00	- 0.01	0.00	0	0	30	1	0	nw.	Santa Fe Co.	
Mill Creek (1).	Amador		4	70.6		96	16	46	1	42	0.00		0.00	0	0	26	4	1	n.	Cal. Gas & Elec. Co.	
Milton (near).	Calaveras	660	20	80.4	+ 1.8	107	16	51	20	39	T.	0.00	T.	0	0	29	2	0	nw.	J. H. Southwick.	
Modesto.	Stanislaus	90	39	86.4	+ 4.9	102	26	70	18		0.00	- 0.01	0.00	0	0	31	0	0	...	Southern Pacific Co.	
Mojave.	Kern	2,751	34	93.8	+ 8.1	112	16	68	1	30	0.00	- 0.08	0.00	0	0	31	0	0	...	Do.	
Mokelumne Hill.	Calaveras	1,550	18	79.8	+ 4.0	103	16	54	20	33	T.	0.00	T.	0	0	26	5	0	...	C. E. Prindle.	
Mono Ranch.	Ventura	3,210	5	69.8		95	15	43	1	41	T.		T.	0	0	26	3	2	w.	Herbert Lathrop.	
Montague.	Siskiyou	2,450	23	73.0	- 6.4	106	15†	37	1	58	1.16	+ 1.09	1.05	0	0	3	16	13	2	nw.	I. E. Deboy.
Monterey.	Monterey	15	46	57.5	- 3.5	68	1†	46	24†		0.00	0.00	0.00	0	0	31	0	0	sw.	Southern Pacific Co.	
Monterio.	Kern	4,500	12	76.0	- 0.2	100	15	50	1	32	0.00	- 0.08	0.00	0	0	16	13	2	nw.	John C. Knecht.	
Mount Tamalpais.	Marin	2,375	12	72.2	+ 1.7	94	16	52	20	23	0.02	+ 0.01	0.02	0	0	1	28	3	0	nw.	U. S. Weather Bureau.
Napa City.	Napa	20	34	64.8	- 1.0	98	25	45	30	49	T.	- 0.01	T.	0	0	7	24	0	s.	Alex. Hull.	
Napa (S. H.).	do.	60	33	64.1	- 1.7	93	1	48	30	42	T.	- 0.01	T.	0	0	30	1	0	sw.	W. H. Martin.	
Needles.	San Bernardino	477	19	92.9	- 1.5	112	15†	74	1	37	0.42	0.00	0.22	0	0	3	22	0	9	sw.	Santa Fe Co.
Nellis.	San Diego	5,350	2	65.6		89	30	48	1†	39	0.47		0.15	0	0	5				T. O. Bailey.	
Nevada City.	Nevada	2,580	19	72.2	+ 3.6	132	16	43	8	50	T.	- 0.03	T.	0	0	27	4	0	sw.	S. W. Marsh.	
Newcastle.	Placer	970	18																	G. D. Kellogg.	
Newhall.	Los Angeles	1,200	34	75.3	- 1.3	111	15	55	10		0.00	- 0.00	0.00	0	0	30	0	1	se.	Southern Pacific Co.	
Newman.	Stanislaus	91	22	84.8	+ 0.2	107	16	63	20	34	0.00	- 0.01	0.00	0	0	31	0	0	n.	E. S. Wangerheim.	
Nimshew.	Butte	2,500	7	73.8		101	15	50	1†	40	0.00		0.00	0	0					Cal. Gas & Elec. Co.	
North Bloomfield.	Nevada	3,200	14	73.9	+ 1.7	100	15†	52†	1†	41	0.00	- 0.09	0.00	0	0	21	7	3	s.	J. R. McIntosh.	
North Fork.	Madera	3,000	7	72.2		104	16†	40	29	57	0.00		0.00	0	0	22	4	5	w.	U. S. Forest Service.	
Oakdale.	Stanislaus	156	17	80.8	+ 1.1	108	16	55	20		0.00	0.00	0.00	0	0	29	2	0	nw.	Southern Pacific Co.	
Oak Grove.	San Diego		1	73.4		104	30	42	1	53	0.44		0.21	0	0	4	19	12	0	...	U. S. Forest Service.
Oakland.	Alameda	36	35	61.7	- 0.1	85	1	52	13†	30	0.00	- 0.02	0.00	0	0	13	14	4	w.	Cabot Observatory.	
Oceanside.	San Diego		1	71.0		83	4†	57	11	24	0.15		0.15	0	0	1	6	24	1	w.	H. D. Brodie.
Ojai Valley.	Ventura	900	5	73.1		110	30	47	28	55	T.		T.	0	0	25	5	1	sw.	W. H. Duncan.	
Orland.	Glenn	254	29	83.4	- 3.0	111	16	54	19	45	T.	- 0.02	T.	0	0	26	4	1	s.	U. S. Reclamation Service.	
Orleans.	Humboldt	520	8	80.8		116	16	48	1	53	T.		T.	0	0	29	2	2	...	F. T. Hale.	
Oroville (near).	Butte	250	27	81.0	- 0.3	112	16	52	19	44	T.	- 0.03	T.	0	0	26	1	4	s	E. D. Fairchild.	
Palermo.	do.	213	20	77.1	- 1.8	110	8	47	29	48	0.00	- 0.04	0.00	0	0	21	10	0	s.	Western Pacific Co.	
Palm Springs.	Riverside	584	22	93.3	- 4.4	117	30	76	1		0.00	- 0.03	0.00	0	0	13	12	6	w.	Southern Pacific Co.	
Pasadena.	Los Angeles	827	21	71.1	- 0.3	99	25	50	1	44	0.60	0.00	0.00	0	0	30	1	0	sw.	E. D. Sorver.	
Paso Robles.	San Luis Obispo.	800	24	70.9	- 1.6	110	16	40	8	58	0.00	0.00	0.00	0	0	29	1	1	nw.	Dr. F. W. Sawyer.	
Peachland.	Sonoma	190	15	63.0	- 3.0	96	25†	41	22†	54	T.	- 0.01	T.	0	0	23	8	0	sw.	E. H. Parnell.	
Penstock Camp.	Tuolumne	3,750	4																	Tuolumne W. P. Co.	
Placerville.	El Dorado	1,875	22	78.5	+ 5.8	114	4	50	1†	54	0.00	- 0.02	0.00	0	0					A. Baring-Gould.	
Point Lobos.	San Francisco	250	18	55.5	- 0.5	78	1	48	15	23	0.00	- 0.01	0.00	0	0	5	5	21	w.	John Hyslop.	
Point Reyes.	Marin	490	19	52.2	- 1.5	62	12	47	3	11	T.	- 0.10	T.	0	0	3	4	24	nw.	U. S. Weather Bureau.	
Porterville.	Tulare	464	22	84.1	- 4.0	110	15†	55	1	48	0.00	- 0.06	0.00	0	0	27	2	2	...	Leslie McAuliff.	
Quincy.	Plumas	3,400	16	66.8	+ 0.9	96	15	38	2†	54	T.	- 0.08	T.	0	0	27	4	0	sw.	U. S. Forest Service.	
Red Bluff.	Tehama	307	34	83.8	+ 1.7	112	15	59	20	37	0.00	- 0.03	0.00	0	0	29	1	1	se.	U. S. Weather Bureau.	
Redding.	Shasta	552	35	84.2	+ 1.9	108	15†	61	20†	36	T.	- 0.09	T.	0	0					E. J. Bassett.	
Redlands.	San Bernardino	1,352	18	77.4	- 0.9	105	15†	53	9	43	T.	- 0.04	T.	0	0	19	8	4	w.	P. W. Moore.	
Reedley.	Fresno	347																			

TABLE 1.—Climatological data for July, 1911. District No. 11—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
California—Continued.																			
Sierraville.....	Sierra.....	5,000	1	65.0	.....	93	16	32	22	55	0.30	.....	0.12	0	3	25	1	5	C. D. Johnson.
Sisson.....	Siskiyou.....	3,555	22	67.8	- 1.9	94	12†	42	4†	46	0.72	+ 0.67	0.60	0	2	28	0	3	Southern Pacific Co.
Soledad **	Monterey.....	188	37	66.2	+ 0.1	85	7	52	22	.....	0.00	0.00	0.00	0	0	31	0	0	Do.
Southeast Farallon.....	San Francisco.....	30	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	U. S. Weather Bureau.
Sonora.....	Tuolumne.....	1,825	23	78.6	.....	104	16	53	1†	42	0.00	- 0.02	0.00	0	0	30	1	0	Chas. P. Jones.
Squirrel Inn.....	San Bernardino.....	5,280	1	66.4	.....	88	30	52	1†	35	T.	.....	T.	0	0	31	0	0	A. D. Frantz.
Stirling City.....	Butte.....	3,525	7	74.3	.....	101	16	51	21	40	0.00	.....	0.00	0	0	28	2	1	Butte County R. R. Co.
Stockton (S. H.).....	San Joaquin.....	23	40	73.9	+ 1.3	98	25	51	20	40	0.00	- 0.02	0.00	0	0	31	0	0	State Hospital.
Storey.....	Madera.....	296	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Santa Fe Co.
Suisun **	Solano.....	20	31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Southern Pacific Co.
Summerdale.....	Mariposa.....	5,270	15	70.0	+ 1.5	96	15	43	1	34	0.00	- 0.03	0.63	0	0	26	5	0	Mrs. J. E. Lowry.
Summit.....	Placer.....	7,017	38	58.8	- 2.2	80	16	36	25	35	0.00	- 0.20	0.00	0	0	29	0	2	Southern Pacific Co.
Susanville.....	Lassen.....	4,175	22	68.2	- 3.6	96	17	39	1†	44	0.77	+ 0.65	0.42	0	3	19	12	0	James Branham.
Tamarack.....	Alpine.....	8,000	5	55.8	.....	86	18	28	1†	45	0.53	.....	0.22	0	8	17	14	0	William Bennett.
Tehachapi **	Kern.....	3,964	34	81.3	+ 4.9	99	16	69	23†	.....	0.00	- 0.01	0.00	0	0	.....	.....	.....	Southern Pacific Co.
Tehama **	Tehama.....	220	40	86.8	+ 2.7	111	16	70	1	.....	0.00	- 0.08	0.00	0	0	29	1	1	Do.
Tejon Rancho.....	Kern.....	1,500	9	78.3	.....	95	17	55	1	24	T.	.....	T.	0	0	23	7	1	S. E. Bailey.
Three Rivers.....	Tulare.....	870	1	81.4	.....	108	16	54	1	45	T.	.....	T.	0	0	19	10	2	E. D. Barton.
Towle.....	Placer.....	3,704	25	69.9	- 1.2	93	8	39	4	44	T.	- 0.11	T.	0	0	30	1	0	Southern Pacific Co.
Tracy **	San Joaquin.....	64	31	84.9	+ 5.0	105	16	64	20	.....	0.00	- 0.01	0.00	0	0	26	5	0	Do.
Ukiah.....	Mendocino.....	620	18	75.4	+ 2.0	110	16	43	21	58	0.00	- 0.03	0.00	0	0	31	0	0	Dr. Geo. McCowen.
Upland.....	San Bernardino.....	1,750	14	74.2	+ 1.1	104	25	49	7	44	0.00	- 0.01	0.00	0	0	29	2	0	A. P. Harwood.
Upper Lake.....	Lake.....	1,350	26	77.4	+ 4.3	108	15	49	1	46	0.00	- 0.03	0.00	0	0	30	1	0	C. M. Hammond.
Vacaville.....	Solano.....	175	23	74.6	- 1.8	106	16	43	26	62	0.00	0.00	0.00	0	0	27	4	0	G. O. Coburn.
Valley Springs **	Calaveras.....	673	22	80.4	- 0.6	109	16	58	20	.....	0.00	- 0.03	0.00	0	0	31	0	0	Southern Pacific Co.
Visalia.....	Tulare.....	334	23	79.4	- 1.6	107	16	52	22	44	T.	- 0.03	T.	0	0	26	4	1	Santa Fe Co.
Warner Springs.....	San Diego.....	3,165	3	73.5	.....	97	30	51	1†	41	0.14	.....	0.14	0	1	19	7	5	Mrs. F. S. Sandford.
Wasco.....	Kern.....	336	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Santa Fe Co.
Watsonville.....	Santa Cruz.....	23	15	59.2	- 4.1	82	1	39	1	43	0.00	0.00	0.00	0	0	5	25	1	Spreckels Sugar Co.
Weitchpec.....	Humboldt.....	1,700	1	71.2	.....	102	16	41	7	42	0.03	.....	0.03	0	1	29	1	1	M. E. Lathrop.
Westley **	Stanislaus.....	90	22	81.6	- 1.5	108	16	60	24	.....	0.00	- 0.03	0.00	0	0	31	0	0	Southern Pacific Co.
Wheatland.....	Yuba.....	84	24	77.4	+ 0.2	106	16	52	20	40	T.	- 0.01	T.	0	0	27	3	1	Wm. Lumbard.
Willows.....	Glenn.....	136	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. C. Stiles.
Yosemite.....	Mariposa.....	3,945	7	71.8	.....	98	13†	42	1	50	0.39	.....	0.37	0	2	26	5	0	J. P. Kelly.

* , b , c , etc., indicate respectively 1, 2, 3, etc., days missing from the record.

** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for July, 1911. District No. 11, Oregon.

[illegible]

TABLE 2.—Daily precipitation for July, 1911. District No. 11—Continued.

[illegible]

TABLE 2.—Daily precipitation for July, 1911. District No. 11—Continued.

[illegible]

TABLE 2.—Daily precipitation for July, 1911. District No. 11—Continued.

Stations.	Watershed	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
<i>California—Con.</i>																																	
Upper Lake.....	Sacramento.																																0.00
Upper Mattole.....	Coast.....																																0.00
Varaville.....	Sacramento.																																0.00
Valley Springs.....	San Joaquin.																																0.00
Visalia.....	do.....									T.	T.																						T.
Warner Springs.....	Coast.....																.14										T.						0.14
Wasco.....	San Joaquin.																																0.00
Watsonville.....	Coast.....																																0.00
Welchpec.....	Klamath.....																									T.	.03						0.03
West Branch.....	Sacramento.																																0.00
Westley.....	San Joaquin.																																T.
West Point.....	do.....											T.				T.			T.													0.00	
West Saticoy.....	Coast.....																																T.
Wheatland.....	Sacramento.											T.	T.																				0.00
Willows.....	do.....																																T.
Yosemite.....	San Joaquin.											.37							.02														0.39

* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

|| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures for July, 1911. District No. 11, California.

Date.	Lakeview, Oreg.	California.																											
		Alturas.		Barstow.		Branscomb.		Brawley.		Colusa.		Eureka.		Fresno.		Independence.		Los Angeles.		Mount Tamalpais.		Nevada City.		Porterville.		Red Bluff.			
		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.....		80	34	95	67	84	46	96	74	92	68	57	49	95	61	.....	.....	73	59	82	63	91	45	90	55	93	66
2.....		89	34	98	67	86	47	101	69	95	61	56	50	100	65	.....	.....	71	59	77	66	91	48	100	56	98	70
3.....		87	43	100	69	87	47	107	69	93	65	61	50	102	66	.....	.....	75	58	80	61	92	49	101	56	97	67
4.....		92	44	98	65	89	51	108	71	94	61	59	52	101	66	.....	.....	76	58	79	63	96	49	103	65	100	67
5.....		96	46	100	70	90	58	110	73	95	59	60	50	104	66	.....	.....	79	58	81	69	96	50	103	67	102	68
6.....		93	47	106	70	90	55	107	73	92	61	58	51	103	68	.....	.....	78	59	83	65	97	52	102	68	98	69
7.....		87	45	105	73	86	57	107	74	90	58	57	49	100	68	.....	.....	74	58	73	61	95	47	100	62	97	69
8.....		82	37	106	73	83	58	105	73	96	70	58	46	98	62	.....	.....	74	59	82	62	93	43	98	63	96	68
9.....		90	35	106	62	95	47	.....	69	94	63	59	47	104	68	.....	.....	72	57	83	66	92	51	103	64	102	74
10.....		94	40	100	70	87	55	106	71	94	60	59	48	95	68	.....	.....	68	58	78	59	94	50	99	64	102	66
11.....		90	47	102	75	80	50	.....	.....	90	66	56	48	99	71	.....	.....	74	58	77	59	88	59	101	69	101	68
12.....		95	51	106	72	84	52	103	73	91	59	56	48	100	65	.....	.....	85	59	77	60	89	55	101	67	96	70
13.....		94	47	109	70	85	55	110	75	95	64	55	48	101	68	.....	.....	84	63	73	62	92	49	101	67	98	70
14.....		94	50	100	70	95	55	107	74	98	60	55	48	104	69	.....	.....	84	61	82	65	98	54	102	67	100	69
15.....		97	50	107	78	101	61	.....	.....	101	65	56	49	107	79	.....	.....	93	66	90	74	99	60	110	80	112	75
16.....		101	53	111	83	98	65	113	82	105	73	57	49	111	78	.....	.....	90	66	94	79	102	61	110	77	111	83
17.....		94	54	100	83	93	63	.....	.....	100	67	57	50	106	79	.....	.....	80	62	81	67	98	63	105	82	102	82
18.....		90	49	108	73	86	47	108	80	90	62	57	50	98	74	.....	.....	81	62	74	63	92	59	103	75	98	72
19.....		89	50	103	69	80	40	102	78	84	55	58	50	99	66	.....	.....	77	60	69	53	91	51	100	68	91	66
20.....		89	47	102	71	84	39	102	84	84	51	57	52	95	61	.....	.....	75	60	70	52	90	46	99	62	92	59
21.....		87	41	93	73	83	40	95	72	85	53	59	54	95	58	.....	.....	76	61	70	58	87	45	98	61	92	62
22.....		89	42	95	70	90	48	.....	.....	89	54	58	52	96	61	.....	.....	74	61	76	64	91	44	98	61	96	65
23.....		92	43	103	68	93	50	.....	.....	91	55	56	51	96	62	.....	.....	75	59	75	63	93	47	104	65	97	62
24.....		89	47	106	67	96	51	108	79	90	62	58	50	102	63	.....	.....	79	57	83	60	87	60	103	64	83	72
25.....		86	58	106	67	96	51	105	80	97	61	64	53	104	65	.....	.....	88	58	90	74	95	51	106	63	100	70
26.....		88	46	104	69	93	60	105	75	99	66	57	53	106	68	.....	.....	77	58	87	75	95	51	107	71	101	76
27.....		92	46	101	71	90	49	99	72	91	60	56	51	101	70	.....	.....	83	58	80	64	95	49	104	72	98	70
28.....		93	45	107	70	95	51	104	72	89	57	58	51	101	65	.....	.....	76	55	78	64	92	51	102	62	96	66
29.....		90	56	106	67	95	54	110	73	94	57	57	50	102	65	.....	.....	80	59	83	67	92	49	104	66	98	66
30.....		89	44	109	73	96	60	114	79	96	60	57	49	105	64	.....	.....	88	59	87	72	96	47	105	65	102	68
31.....		90	40	108	70	90	53	113	83	93	59	55	51	104	67	.....	.....	92	65	83	72	95	49	104	64	101	68
Means.....		90.6	45.5	103.2	70.8	90.0	52.1	105.5	75.1	93.2	61.0	57.5	50.0	101.1	67.0	.....	.....	79.1	59.7	79.9	64.6	93.4	51.1	102.1	66.1	98.6	69.1

Date.	California.																									
	Redlands.		Sacramento.		San Diego.		San Francisco.		San Jose.		San Luis Obispo.		Santa Barbara.		Santa Rosa.		Sisson.		Stockton.		Summit.		Susanville.		Yosemite.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	83	57	92	67	67	61	84	54	91	48	90	52	67	52	96	50	72	48	94	62	64	40	74	39	88	42
2.....	85	57	71	61	67	62	58	51	81	53	72	53	66	58	86	48	73	49	91	62	66	42	83	44	90	44
3.....	90	54	90	56	68	61	63	49	81	49	70	50	68	55	80	46	75	48	92	57	68	37	87	49	90	45
4.....	96	54	88	58	69	59	58	50	77	51	76	50	68	55	80	50	84	42	90	60	70	41	87	59	92	45
5.....	97	57	91	56	68	60	62	50	80	55	72	49	70	55	78	50	88	50	92	57	75	42	90	54	93	47
6.....	98	59	86	55	67	59	60	50	79	54	73	49	71	57	73	48	85	50	91	56	71	42	90	54	97	50
7.....	92	54	85	55	68	60	65	51	80	52	71	49	69	56	84	42	77	42	88	57	71	52	85	47	90	47
8.....	88	54	94	62	66	59	71	51	88	51	69	50	70	57	89	45	76	49	90	58	73	40	73	39	93	47
9.....	83	53	95	62	67	59	59	50	84	51	72	52	69	58	82	46	77	51	97	57	74	47	82	39	96	47
10.....	78	57	83	56	68	59	61	52	80	53	66	55	67	54	72	48	88	52	86	56	75	51	88	44	94	52
11.....	72	57	85	60	70	62	61	53	78	57	70	53	69	52	75	50	89	54	85	60	69	53	87	57	89	57
12.....	96	58	87	56	74	61	62	53	75	56	73	53	80	51	76	54	94	50	88	56	74	48	90	55	91	50
13.....	101	63	88	58	71	61	60	51	74	53	72	53	78	62	74	50	89	50	90	57	75	52	91	53	98	57
14.....	96	65	97	56	93	63	61	50	77	54	78	52	80	59	77	50	88	51	92	57	78	50	88	52	98	57
15.....	105	70	97	60	78	64	60	50	81	54	83	54	82	62	81	50	92	59	97	58	77	55	84	55	94	60
16.....	101	75	98	66	71	64	60	50	81	55	80	53	73	59	78	50	91	59	97	68	80	52	92	57	98	57
17.....	95	69	81	59	67	62	58	52	73	56	75	54	78	60	70	51	92	50	87	53	79	55	96	63	97	57
18.....	93	66	80	56	68	62	58	51	72	53	72	53	76	58	70	50	94	49	87	60	74	53	88	53	95	60
19.....	89	61	75	51	72	62	60	51	70	53	70	52	70	58	68	49	87	49	87	53	72	51	88	54	92	53
20.....	90	60	77	51	68	63	59	51	68	54	68	51	72	57	72	50	86	50	87	51	72	49	84	50	92	51
21.....	83	60	77	51	66	62	59	51	70	51	70	52	70	57	75	47	87	49	81	51	71	42	83	45	90	46
22.....	89	61	87	53	70	62	60	51	77	46	73	48	70	55	79	43	94	48	89	54	72	40	82	44	90	45
23.....	94	59	86	52	70	60	60	50	74	53	74	52	72	57	74	50	88	47	87	53	68	42	91	51	90	47
24.....	99	58	90	52	69	60	65	51	75	55	78	51	80	57	79	51	89	48	91	53	65	44	90	50	98	48
25.....	105	64	98	58	72	62	70	50	87	55	77	51	73	58	93	50	90	50	98	58	71	36	85	52	96	50
26.....	100	64	100	64	70	62	61	51	81	54	77	50	74	56	81	50	90	46	95	62	72	43	85	51	94	49
27.....	95	60	83	55	72	62	58	51	77	53	73	52	68	56	70	52	86	47	85	58	73	43	85	47	93	49
28.....	99	58	87	52	70	62	60	51	76	55	80	52	71	54	73	49	86	49	88	54	61	48	88	52	94	48
29.....	99	62	91	56	73	61	60	50	80	53	76	52	75	55	78	48	85	51	95	55	73	41	88	51	97	50
30.....	105	62	98	58	76	61	64	49	86	53	80	50	82	53	87	47	90	50	90	58	74	42	85	50	96	50
31.....	105	68	94	62	88	61	62	49	85	49	80	49	84	59	85	43	83	47	95	63	71	40	85	46	96	47
Means.....	94.2	60.5	88.7	57.3	71.1	61.2	61.9	50.9	78.6	52.9	74.8	51.5	73.0	56.5	78.5	48.6	86.0	49.5	90.6	57.2	71.9	45.6	86.3	50.2	93.6	50.1

CLIMATOLOGICAL DATA FOR JULY, 1911.

DISTRICT No. 12, COLUMBIA VALLEY.

EDWARD A. BEALS, District Editor.

GENERAL SUMMARY.

July was noted for the extremes in temperature and the deficiency in rainfall, which latter was especially marked in Washington, where it was drier than it has been during any other July of the last 22 years. The unusually high temperature of 114° recorded at Kennewick is within 2° of the highest record in that State, which is 116° , recorded at Lind, Wash., in 1900. In Oregon the highest temperature was 115° at Blalock, but this record has been exceeded a number of times, the highest authentic temperature recorded in Oregon being 119° at Prineville on July 29, 1898. Notwithstanding the dry weather and extreme heat, no great damage occurred, as the soil had been well moistened by good rains during the last decade in June. Thunderstorms were infrequent, and the few forest fires that occurred were quickly extinguished by the efficient fire patrols that have been established under National and State control. There were no damaging storms of note, and the weather on the whole was favorable for business and outdoor work of every kind.

TEMPERATURE.

The mean temperature of the district as determined from the records of 261 stations averaged 68.6° , or about 1.6° above the normal. The mean temperatures were highest in the valleys of northeastern Oregon and southeastern Washington and lowest along the coast and in the mountainous regions of Wyoming. The temperature was above normal over all those portions of Oregon and Washington lying east of the Coast Mountains, and in northern and portion of southwestern Idaho. The greatest excess reported was 9.2° at Garnet, Idaho. Unusually high means were also reported from north-central and southwestern Oregon. In central and southeastern Idaho, western Montana and Wyoming, and along the coast the mean temperatures were below normal, the deficiency being most pronounced in the northern part of Oneida County, Idaho, where it amounted to almost 6° . The first decade was the coolest period, during which time some freezing weather occurred in the mountain and plateau regions. There were two very warm periods of about a week in duration each, namely, from the 12th to the 19th and from the 23d to the 29th, respectively. The 16th was a day of excessively high temperatures throughout the district except along the coast. On this day 115° was recorded at Blalock, Oreg., and 114° at Kennewick, Wash. The lowest temperature recorded was 25° at Pierson, Idaho, on the 2d, and also at Cliff, Oreg., and Williams, Oreg., on the 8th. The remarkable range of 72° occurred on the 13th at Snyders Ranch, a station in the upper part of the Twisp Valley in Washington, a maximum of 109° and a minimum of 37° being recorded.

PRECIPITATION.

The precipitation was below normal in all portions of the district, the greatest amount as usual occurring along the coasts and in the higher elevations of the Cascade and Rocky Mountain ranges. At 130 stations, or about one-third of the number reporting, no rainfall in excess of a

trace was observed. In that portion of the district lying within the State of Washington the average precipitation was, with one exception, the least that has occurred there within the last 22 years.

Throughout the month the precipitation was remarkably evenly distributed, which makes it difficult to group the periods of wet and dry weather. In Idaho the rainfall was altogether local in character, and this is also true of most other portions of the district, although in Washington the showers generally occurred from the 1st to the 3d and from the 6th to the 9th.

The average precipitation for the district, as determined from the records of 369 stations, was 0.19 inch, which is 0.55 inch below the normal amount for July. The greatest monthly amount recorded was 1.54 inches at Clearbrook, Wash. The greatest amount in 24 consecutive hours was 1.08 inches at Libby, Mont., on the 8th.

THE RIVERS.

All the rivers in the district showed a steady fall from the June stages, the change in the Snake River being most marked and in the Willamette the least. The streams were very nearly normal, however, the departures, such as there were, being mostly negative.

The Columbia River averaged 0.3 foot below the July normal; it was 2.4 feet below normal at Cascade Locks and 0.9 foot below at The Dalles. The highest stages occurred on the 1st and the lowest on the 31st. Compared with the mean stage for June, the average was 3.6 feet lower.

The Willamette River averaged 0.1 foot below the normal July stage. The backwater from the Columbia River kept the height of the Willamette at Portland above the flood stage—that is to say, above 15 feet, as recorded on the Weather Bureau gage—from the 7th of June until the 12th of July. The highest stage on the Willamette during the month was 17.9 feet at Portland on the 1st and the lowest was -0.6 foot at Harrisburg on the last five days of July.

The Snake River averaged 0.1 foot below the normal for the month and a fall of 6.7 feet from the mean stage for June. The highest water was 11 feet at Lewiston on the 1st and the lowest 1.8 feet at Lewiston and Weiser on the 31st.

MISCELLANEOUS.

Thunderstorms occurred over practically the entire district. They were most frequent in the central and northeastern sections and the periods of greatest frequency were from the 12th to 15th and 20th to 25th. Killing frosts occurred at various places in the mountainous sections of the district from the 7th to 10th.

Hailstorms occurred at but few stations in the district. A number of stations in the eastern sections reported high winds, especially on the 6th. The maximum velocity on this date was at Lewiston, Idaho, 48 miles from the west.

Sunshine was about normal; it was deficient during the first half of the month and excessive during the last. The prevailing direction of wind for the district was northwest.

TABLE 1.—Climatological data for July, 1911. District No. 12, Columbia Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.			Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of overcast days.
Montana.																				
Anaconda.	Deer Lodge.	5,300	10	60.4	- 2.7	88	25	35	9	41	0.04		0.02	0.0	3				C. D. Demond.	
Bison Mountain.	Powell.	7,240	2								0.15		0.08	0.0	3	24	7	0	C. H. Anderson.	
Butte.	Silver Bow.	5,716	17	63.1	- 0.9	89	6	39	17	35	0.40	- 0.83	0.40	0.0	1	19	8	4	J. R. Wharton.	
Columbia Falls.	Flathead.	3,100	16	62.5	- 1.5	95	25	34	11	50	0.85	- 0.69	0.36	0.0	7	18	8	5	J. M. Grist.	
Como **.	Ravalli.	3	3	65.4		96	6	42	27	46	0.08		0.08	0.0	1	26	4	1	Hiram Platt.	
East Anaconda.	Deer Lodge.	5,500	6	63.2		91	25	38	1	43	0.01		0.01	0.0	1	23	8	0	C. D. Demond.	
Fortine.	Lincoln.	2,975	6	60.2		93	25	30	6	53	0.29		0.18	0.0	5	12	10	9	Mike Petery.	
Hamilton.	Ravalli.	3,575	8	65.4		93	6	39	31	40	0.87		0.50	0.0	3	22	9	0	U. S. Weather Bureau.	
Hat Creek.	Powell.	6,000	2								0.88		0.60	0.0	8	13	16	2	M. K. Landreth.	
Kalispell.	Flathead.	2,965	13	62.6	- 1.7	90	55	42	2	41	0.78	- 0.06	0.27	0.0	7	12	15	4	U. S. Weather Bureau.	
Libby.	Lincoln.	2,055	1	64.6		98	25	34	57	53	1.43		1.08	0.0	2	26	0	2	M. E. Simmonds.	
Lost Creek.	Deer Lodge.	5,200	2								1.27		0.67	0.0	4	24	3	4	Frank Henault.	
McGinnis Meadows.	Lincoln.	2	2																H. L. Bebee.	
Missoula.	Missoula.	3,225	32	65.8	- 1.4	96	18	36	10	48	0.21	- 0.84	0.12	0.0	3				U. S. Weather Bureau.	
Ophir.	Powell.	8,800	2								1.33		0.65	0.0	3	20	10	1	E. S. Wilton.	
Ovando.	do.	4,207	12	57.9	- 2.4	89	6	31	11	50	0.91	- 0.21	0.51	0.0	4	0	31	0	S. B. Muchmore.	
Phillipsburg.	Granite.	5,275	8																G. T. Bramble.	
Plains.	Sanders.	2,475	13	64.4	- 1.5	92	24	39	2	41	0.18	- 1.43	0.18	0.0	1	28	1	2	M. H. Pierce.	
Pleasant Valley.	Flathead.	3,500	4	57.1		89	157	29	28	54	0.53		0.23	0.0	4	22	7	2	A. D. Stillman.	
Polson.	do.	2,920	4	65.4		89	257	42	2	37	0.42		0.22	0.0	3				F. P. Brown.	
Proctor.	do.	2,800	7																C. E. Proctor.	
St. Ignatius.	Missoula.	2,700	6	64.6		96	29	37	87	46	0.63		0.38	0.0	4	18	5	3	U. S. Reclamation Service.	
St. Regis.	do.	2,650	4	63.5		97	15	32	107	57	0.00		0.00	0.0	0	9	20	2	R. D. Lee.	
Saltese.	do.	3,600	7								0.28		0.28	0.0	1	28	0	3	E. K. Tarbox.	
Troy.	Lincoln.	1,880	17																W. E. Milnor.	
Willow Glen Stock Farm.	Deer Lodge.	5,064	1	59.5		87	24	33	30	45	0.13		0.12	0.0	2	18	11	2	G. E. Luce.	
Wyoming.																				
Afton.	Uinta.	6,200	7	58.6	- 1.7	87	14	27	97	55	0.57	- 0.23	0.29	0	4	30	1	0	A. V. Call.	
Alta.	do.	7,000	1	56.2		82	14	29	237	47	0.72		0.30	0	3	24	6	1	Mrs. Lucy Brown.	
Bedford.	do.	5,900	11	57.0	- 2.1	83	14	27	9	48	0.39	- 0.32	0.23	0	2	27	4	0	C. G. Heimer.	
Belcher River.	Yellowstone Park.										0.04		0.02	0	2				U. S. Army.	
Moran.	Yellowstone Park.	7,000	5	55.5		84	14	28	107	50	0.02		0.02	0	1	20	9	2	U. S. Reclamation Service.	
Snake River.	Yellowstone Park.																		U. S. Army.	
Nevada.																				
San Jacinto.	Elko.		6	65.6		96	14	35	17	51	0.38		0.18	0	5	18	11	2	Mose Jones.	
Utah.																				
Standrod.	Boxelder.		7	65.6		86	137	35	17	35	0.59		0.17	0	9	21	8	2	T. B. Jones.	
Idaho.																				
Alpha.	Boise.		1																J. W. King.	
Almo.	Cassia.		3								0.41		0.20	0	3	23	6	2	William D. Cahoon.	
American Falls.	Oneida.	4,341	19	63.7	- 5.6	96	16	27	1	56	0.04	- 0.44	0.03	0	2	31	0	0	Harry W. Hall.	
Blackfoot.	Bingham.	4,503	15	65.0	- 3.3	91	17	36	1	46	T.	- 0.46	T.	0	0	21	10	0	E. A. Dowd.	
Blackfoot Dam.	Bannock.	6,200	2	61.6		91	12	32	1	48	0.18		0.18	0	1	22	8	1	N. W. Irfield.	
Bogus Creek.	Boise.	4,200	3																F. P. Ingraham.	
Boise.	Ada.	2,739	26	73.6	+ 0.8	99	17	48	9	41	0.05	- 0.13	0.04	0	2	20	11	0	U. S. Weather Bureau.	
Bonniers Ferry.	Bonner.	1,850	4	64.5		97	217	34	5	52	0.00		0.00	0	2	21	8	2	W. H. Heideman.	
Boulder Mine.	Boise.	4,800	2																Patrick Moriarty.	
Buhl.	Twin Falls.	3,800	5	74.7		102	5	43	1	48	0.18		0.08	0	5				Hugh Taylor.	
Caldwell.	Canyon.	2,372	7	72.5		99	147	41	9	47	0.23		0.23	0	1	19	12	0	Wm. J. Boone, D. D.	
Camas.	Fremont.	4,815	3	64.2		95	14	34	17	51	0.10		0.10	0	1	14	17	0	Mrs. Ednah Faulkner.	
Cambridge.	Washington.	2,651	16	71.6	- 5.6	102	13	38	9	49	3.00	- 0.31	0.00	0	0	30	1	0	Chas. H. Shepherd.	
Cedar Creek Dam.	Twin Falls.		2								0.44		0.22	0	5	16	14	1	R. Hoffman.	
Chesterfield.	Bannock.	5,424	16	61.2	- 0.8	91	17	27	9	56	0.08	- 0.36	0.04	0	2	21	8	2	C. S. West.	
Clyde.	Custer.		2	60.4		88	31	33	1	48	0.19		0.05	0	5	20	11	0	R. L. Sutcliffe.	
Cottonwood Creek.	Boise.	4,000	2																F. Hedrick.	
Council.	Washington.		2	72.2		96	127	42	87	45									Dick Ross.	
Culdesac.	Nex Perce.	1,520	3	71.0		105	16	40	4	50	0.00		0.00	0	0	26	5	0	R. R. Richmond.	
Deary.	Latah.		2																H. P. Henry.	
Dent.	Clearwater.	1,350	6	69.7		103	17	40	10	61	0.05		0.05	0	1	22	9	0	E. Schuessler.	
Driggs.	Fremont.	6,097	5	59.2		89	5	32	107	48	T.		T.	0	0	17	10	4	W. H. Durrant.	
Edie.	do.		2	58.8		81	17	33	27	40	0.09		0.09	0	1	29	2	0	G. B. Edie.	
Emmett.	Canyon.	2,350	5	72.5		102	137	40	8	48	T.		T.	0	0	29	2	0	C. P. Kar.	
Forney.	Lemhi.		14	60.6	- 0.2	93	7	29	9	56	0.94	- 0.14	0.74	0	3	12	17	2	M. B. Merritt.	
Garden Valley.	Boise.	2,600	4								0.09		0.09	0	1	24	6	1	Mrs. Gertrude M. Ross.	
Garnet.	Elmore.	2,575	12	79.4	+ 9.2	105	147	46	9	48	0.00	- 0.12	0.00	0	0				A. A. Kenison.	
Glenns Ferry.	do.	2,569	4	74.6		106	167	37	9	54	0.09		0.09	0	1	31	0	0	I. E. Perkins.	
Gooding.	Lincoln.	3,572	2	70.5		98	137	36	1	49	0.00		0.00	0	0	26	4	1	J. Krall, Jr.	
Grand Forks.	Shoshone.	3,000	2	60.0		92	16	34	107	52	0.42		0.20	0	3	21	9	1	H. Kottkey.	
Grand View.	Owyhee.		2	74.1		101	15	38	9	52	0.27		0.12	0	3	27	4	0	N. G. Massey.	
Grimes Pass.	Boise.	5,200	2								0.04		0.04	0	1				J. M. Clarke.	
Guffey.	Owyhee.	2,381	3	78.1		105	15	46	9	44	0.20		0.14	0	3	27	4	0	Fred Perry.	
Hailey.	Blaine.	5,347	9	67.5	0.0	96	14	35	1	44	0.04	- 0.38	0.03	0	2	17	14	0	U. S. Forest Service.	
Hot Spring.	Owyhee.	2,752	6	77.6		102	167	44	1	46	T.		T.	0	0	24	6	1	J. M. Waterhouse.	
Idaho Falls.	Bonneville.	4,742	17	65.6	- 1.9	91	137	35	1	45	0.30	- 0.22	0.24	0	3	22	9	0	Dr. T. M. Bridges.	
Indian Valley.	Adams.	2,999	3								0.06		0.00	0	0	29	2	0	A. A. Henke.	
Irwin.	Bonneville.	6,500	2																Eva Johnston.	
Kellogg.	Shoshone.	2,305	7	64.2		95	167	37	11	46	0.60		0.25	0	3	24	1	6	W. McM. Huff.	
Kirkham.	Boise.		2								0.00		0.00	0	0	22	7	2	Mrs. Josie B. West.	
Kooskia.	Idaho.	1,261	3																U. S. Forest Service.	
Lakeview.	Bonner.	2,250	13	66.0	+ 0.4	92	25	45	13	41	0.26	- 0.75	0.16	0	3	23	2	6	E. D. Faust.	
Landore.	Adams.	5,300	7	61.7		92	13	32	8	47	0.06		0.06	0	2				Mrs. Emma L. Brown.	
Lewiston.	Nex Perce.	757	24	75.2	+ 1.6															

TABLE 1.—Climatological data for July, 1911. District No. 12—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Idaho—Continued.																				
Meridian.	Ada.	2,657	1	72.6		101	15†	40	9	46	0.19		0.14	0	2	17	14	0	nw.	A. W. Garrett.
Mesa.	Adams.	3,275	2	72.8		99	17	46	2†	40	0.25		0.25	0	1	16	10	5	ne.	I. S. Carter.
Middle Fork.	Idaho.	1,250	2	68.6		98	15†	45	10†	46	0.12		0.12	0	1	31	0	0		Jos. McGhee.
Milner.	Twin Falls.	4,110	6	71.0		97	15†	37	1	45	0.20		0.15	0	2	25	4	2	w.	J. K. Young.
Moscow.	Latah.	2,748	20	68.0	- 1.4	99	16	40	10	44	0.10	- 0.65	0.05	0	2	17	13	1	nw.	University of Idaho.
Mountainhome.	Elmore.	3,150	6	70.6		100	15	36	9	51	0.07		0.07	0	1	21	10	0	nw.	Mrs. Ellen Manion.
Murtaugh.	Twin Falls.		5	68.0†		93†	7†	35†	1	45†	0.34		0.20	0	2				w.	J. E. Steinhilber.
Nes Perce.	Lewis.	3,082	2	64.0		95	16	34	9	47	0.00		0.00	0	0	26	5	0		P. Mitchell.
Oakley.	Cassia.	4,700	18	70.3	- 0.4	95	13†	41	1	46	0.84	+ 0.40	0.35	0	4	16	15	0	s.	John Adams.
O'Hara Bar.	Idaho.	1,400	2																	J. D. Agnew.
Orofino.	Clearwater.	1,027	8	69.8		104	16	43	9†	56	0.19		0.15	0	3	22	9	0		G. Altenecker.
Payette.	Canyon.	2,159	20	73.0	- 0.9	104	17	40	9	51	T.	- 0.31	T.	0	0	25	4	2	n.	E. F. Allen.
Peaceful Valley.	do.	2,325	1																	J. W. Newton.
Pebble.	Bannock.	5,277	2	61.7		89	17	27	9	53	0.49		0.40	0	4	20	11	0	sw.	Mrs. Fannie Say.
Pierson.	Custer.	7,000	3	60.3		88	5†	25	2	55	T.		T.	0	0	30	1	0		D. P. Clarke.
Pleasant Valley.	Ada.	3,000	4	71.2		101	13	40	9†	48	0.28		0.23	0	3	31	0	0	n.	C. E. Friedrich.
Pocatello.	Bannock.	4,483	12	69.6	- 1.6	93	14	41	1	40	0.47	- 0.16	0.42	0	5	20	11	0	se.	U. S. Weather Bureau.
Pocatello Nursery.	do.	5,396	3	62.9†		87†	7	30†	2	52	0.15		0.11	0	2				sw.	Mrs. Anna M. Wrensted.
Poplar.	Bonneville.		3																	C. M. Lawrence.
Porthill.	Bonner.	1,665	20	64.9	- 1.1	93	25	39	5	40	0.49	- 0.55	0.22	0	4	23	6	2		H. A. French.
Pyle Creek.	Boise.	3,100	2								0.20		0.10	0	3	25	6	0	s.	P. V. Smith.
Richfield.	Lincoln.		2	69.1		97	15	32	1	49	0.00		0.00	0	0	25	6	0	w.	Idaho Irrigation Co.
Roseberry.	Boise.		1	58.9		92	5	30	8	50	0.50		0.28	0	2					Rev. H. F. Barstow.
Roseworth.	Twin Falls.		2								0.25		0.12	0	3	1	29	1	nw.	D. B. Hartwell.
Rupert.	Lincoln.	4,204	5	68.2		94	13†	37	1	46	0.40		0.20	0	3	27	3	1	w.	Will Parry.
St. Maries.	Kootenai.	2,263	15	66.3	+ 0.9	95	15†	41	11	42	0.35	- 0.72	0.28	0	3	16	9	6	nw.	J. S. Turnbull.
Salmon.	Lemhi.	4,040	6	65.7		93	14†	38	9	48	0.26		0.18	0	2	25	6	0	w.	B. C. d'Easum.
Salmon River Dam.	Twin Falls.		3	70.8		95	13	38	8	41	0.26		0.17	0	4	23	3	5	nw.	A. M. Gilbert.
Sandpoint.	Bonner.	2,086	1	63.9		94	17†	35	10	52	0.18		0.09	0	3	21	6	4	w.	J. H. Edgerton.
Sheep Hill.	Boise.	5,000	3								0.10		0.08	0	3					C. M. Gardner.
Shoshone.	Lincoln.	3,968	3	68.1		91	16	34	8	45	T.		T.	0	0	22	9	0	w.	O. A. Truman.
Silver City.	Owyhee.	6,280	4								0.36		0.12	0	5	14	14	3	w.	A. D. Bradfield.
Soldier Creek.	Blaine.		1	64.3†		88†	4†	33†	7	44†	T.		T.	0	0					J. E. Minear.
Spirit Lake.	Kootenai.		1	64.7		97	15	35	10	54	0.63		0.32	0	2	28	3	0	ne.	M. C. Krause.
Springfield.	Bingham.	4,420	3	67.8		95	14	36	1	52	0.02		0.02	0	1	18	13	0	sw.	Mrs. W. A. Edwards.
Sugar.	Fremont.		4	63.8		90	14	35	2†	44	0.11		0.06	0	2	20	8	3	sw.	Utah-Idaho Sugar Co.
Sunnyside.	Elmore.		2	72.2		101	13	39	31	50	0.13		0.13	0	1				nw.	E. A. Wilmot.
Tripod Mountain.	Boise.	4,300	2								0.05		0.05	0	1	26	5	0		Mrs. Verna Paddock.
Twin Falls.	Twin Falls.	3,825	6	69.4		98	6†	33	8	51	0.05	- 0.12	0.04	0	2	18	11	2	w.	J. A. Waters.
Vernon.	Fremont.		14	62.8	- 1.5	90	16	32	9	45	0.50	- 0.12	0.31	0	4	18	12	1	sw.	A. M. Slatery.
Wallace.	Shoshone.	2,728	4	64.4		95	15†	40	11	46	0.39		0.25	0	5				e.	U. S. Weather Bureau.
Wendell.	Lincoln.	3,400	3	73.0		102	13†	38	9	51	T.		T.	0	0	25	5	1	w.	C. L. Dingler.
Washington.																				
Aberdeen.	Chehalis.	162	60	62.1	+ 2.0	96	13	44	12	44	.80	- .11	.22	0	6	12	17	2	w.	C. S. Weatherwax.
Anacortes.	Skagit.	60	17	60.1		86	16†	39	6	43	.34	- .25	.12	0	4	21	8	2		Douglas Almond.
Baker.	do.	200	5	67.6		98	24	44	11	42	.41		.26	0	2	18	10	3		R. M. White.
Bellingham.	Whatcom.	60	16	62.0	+ 1.2	84	29	40	10	37	.53	- .23	.18	0	7	24	5	2		S. B. Mayhew.
Bellingham, near.	do.	107		61.2		86	17	39	11	37	.19		.07	0	6	20	7	4		U. S. Bureau Plant Industry.
Beverly.	Grant.	545																		
Blaine.	Whatcom.	57	14	61.0	+ 0.1	90	17	40	4†	40	.62	- 1.23	.26	0	5	15	14	2	w.	J. W. Sheets.
Blewett.	Chelan.	2,200	1																	John Burmeister.
Bremerton.	Kitsap.	30									.14		.06	0	3					U. S. Navy Yard.
Brewster.	Okanogan.	1,620	1	73.6		104	15	51	11	39	T.		T.	0	0	26	5	0	sw.	Mrs. H. F. Bertram.
Bumping Lake.	Yakima.	3,400		59.2		94	16	31	22†	53	.10		.10	0	1	29	0	2		U. S. Reclamation Service.
Cedar River.	King.	525	4								.89		.57	0	4	19	4	8		George Landsburg.
Centralia.	Lewis.	212	18	64.6	+ 0.3	98	16	38	9	46	.14	- .53	.14	0	1	16	12	3	n.	J. S. Turner.
Cheney.	Spokane.	2,351	12	70.5		98	17	43	10	49	.00	- .70	0	0	0				w.	State Normal School.
Cle Elum.	Kittitas.	1,930	12	63.6	- 0.2	102	15	36	13	56	0	- .35	0	0	0	27	4	0	sw.	J. A. Balmer.
Clearbrook.	Whatcom.	140	8	61.6		96	24	36	11	50	1.54		.72	0	5	17	10	4	w.	George Gibbs.
Colfax.	Whitman.	2,300	22	67.0	+ 2.2	101	16	34	11	51	0	- .64	0	0	0					J. B. Doolittle.
Colville.	Stevens.	1,635	11	67.6	- 0.5	101	16	37	11	51	1.06	- .13	.97	0	2	19	9	3	sw.	W. L. Sax.
Conconully.	Okanogan.	2,300	11	67.4	+ 0.9	97	15†	39	11	43	.03	- 1.07	.02	0	2	25	1	5		William Baines.
Cowiche.	Yakima.	1,874		71.8		101	16	45	7	34	.02		.02	0	1	27	4	0	nw.	U. S. Reclamation Service.
Crescent.	Lincoln.	2,250	11	67.6	+ 1.3	99	16	41	11	48	.29	- .44	.27	0	2	27	3	1		Otto Wollweber.
Davenport.	do.	2,450	2	67.6†		98†	15†	38†	7†	45	.22		.22	0	1	22†	2†	2†		James L. Thayer.
Dayton.	Columbia.	1,700	25	72.0	+ 2.5	100	16	45	9†	38	.05	- .56	.05	0	1	26	5	0		W. W. Hendron.
Deer Park.	Spokane.	2,050		65.9		99	15†	36	10†	52	.49		.40	0	2	22	6	3	sw.	James Mills.
Detroit.	Mason.	30	3	66.0		97	16†	42	11	48	.61		.55	0	4	20	8	3	se.	Walter O. Eckert.
Dixie.	Walla Walla.	5,000	2								.03		.03	0	1	22	6	3	sw.	T. Z. Andrews.
Dryden.	Chelan.	960	1								0		0	0	0	29	2	0	nw.	Valley Power Co.
Duckabush.	Jefferson.	380	3	63.7		94	24	39	11	45	.40		.15	0	5	14	9	8	sw.	E. G. Newman.
East Sound.	San Juan.	500	16																	B. E. Harrison.

TABLE 1.—Climatological data for July, 1911. District No. 12—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.			
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.	Prevailing wind direction.	
Washington—Contd.																					
Lake Clealum.	Kittitas.	2,171	2							.29		.27	0	2	19	8	4	nw.	U. S. Reclamation Service		
Lake Kachess.	do.	2,235	3	63.7		98	15	41	11	48	.72		.60	0	4	22	8	1	s.	Do.	
Lake Keechelus.	do.	2,479	3										.30	0	2	22	2	7	w.	Do.	
Lakeside.	Chelan.	1,116	20	73.4	+ 0.5	103	16	51	7	40	T.	-.34	T.	0	0	20	9	2	w.	W. H. Van Meter.	
Laurel.	Klickitat.	1,900	2								0		0	0	0	23	8	0	w.	Mrs. Minnie E. Strout.	
Laurier.	Ferry.	1,644	1	69.3		102	16†	41	5	56	.94		.86	0	0	18	8	5	ne.	Mrs. J. S. Myers.	
Lester.	King.	1,614	7	64.5		102	15	35	11	59	.67		.30	0	3	21	2	8	w.	W. W. Clabaugh.	
Lone Tree.	Chehalis.	14	2	58.6		84	13	49	11†	30	.35		.12	0	5	9	16	6	nw.	U. S. Engineer Corps.	
Longmires Springs.	Pierce.	2,800	2																	National Park Ranger.	
Lost Creek.	Okanogan.	3,125	2								.14		.11	0	2	22	7	2	s.	P. H. Leese.	
Lucerne.	Chelan.	1,100	4																	Mrs. Barbara Scheerer.	
McConihe.	Grant.	1,072	2	76.4		108	16	48	1	44	.02		.02	0	1	25	3	3	nw.	Lucien F. McConike, jr.	
McCumber's Ranch.	Yakima.	2,182	2								0		0	0	0	23	8	0	sw.	Mrs. Mary McCumber.	
Mottinger.	Benton.	307	11	78.4	+ 2.5	110	15	50	8	43	0	.19	0	0	0	29	2	0	w.	G. H. Mottinger.	
Mount Pleasant.	Clallam.	500		60.9		91	16	42	8	32	.23		.08	0	5	23	2	6	w.	Wm. M. Dorr.	
Moxee.	Yakima.	1,000.	19	73.5 ^b	+ 2.2	109 ^b	16	40 ^b	1	53 ^b	.03	-.23	.03	0	1	25	5	1	nw.	H. B. Scudder.	
Newport.	Stevens.	2,400	1	64.6		98	16	36	11†	53	.30		.15	0	3	24	6	1	sw.	Chas. M. Talmadge.	
North Head.	Pacific.	211	9	56.4	- 1.3	87	23	48	12	33	.46	-.08	.22	0	7	6	10	15	nw.	U. S. Weather Bureau.	
Northport.	Stevens.	1,350	12	68.4		100	15†	42	11	47	.19	- 1.23	.07	0	4	24	5	2	...	Frank Janneck.	
North Yakima.	Yakima.	1,070	2	76.0		106	16	45	7	39	.02		.02	0	1	27	3	1	nw.	Albert Bender.	
Nutland.	Klickitat.		2	73.6		108	16	42	9	48	.07		.07	0	1					Ruth J. Shepard.	
Odessa.	Lincoln.	1,540	8	71.6		105	16	39	1	59	.14		.14	0	1	20	11	0	sw.	Wm. U. Neely.	
Olga.	San Juan.	50	21	60.4	+ 1.0	81	24	45	28	28	.40	-.33	.21	0	5	19	7	5	nw.	Cecil S. Welles.	
Olympia.	Thurston.	200	33	64.8	+ 1.8	99	16†	40	9†	47	.18	-.51	.10	0	3	20	5	6	nw.	M. O'Connor.	
Omak.	Okanogan.	850	2	78.0 ^m		107†	15	51 ^m	21	51 ^m	T.		T.	0	0	21	7	3	n.	St. John Winbrite.	
Oroville.	do.	922	2	73.9		107	16	47	4	51	T.		T.	0	0	21	10	0	n.	Elizabeth Stansbury.	
Parker.	Yakima.																				
Peola.	Garfield.	5,000	2								.11		.06	0	2	27	4	0	nw.	Samuel Gruell, sr.	
Pomeroy.	do.	1,500	19	71.0	- 1.5	104	16†	42	12	46	T.	-.43	T.	0	0	22	9	0	w.	Peter McClung.	
Port Crescent.	Clallam.	259	16	55.9	- 0.4	88	16	38	11	37	.18	-.43	.11	0	5	12	14	5	w.	U. S. Weather Bureau.	
Port Townsend.	Jefferson.	80	21	60.8	- 0.1	87	16	46	26†	35	.45	-.30	.43	0	3	22	3	6	nw.	Frank Plummer.	
Pullman.	Whitman.	2,550	19	69.4	+ 1.9	99	16	44	9	44	.03	-.61	.03	0	1	25	5	1	sw.	State Agricultural College.	
Queets River.	Chehalis.			61.8 ^a		98	13	38	11	53	1.41		.41	0	11	16	4	11	nw.	C. A. Bullard.	
Quinalt.	do.	300	4	65.6		104	13	42	11†	59	0.47		.25	0	4	19	9	3	w.	A. V. Higley.	
Republic.	Ferry.	2,628	11	63.7	- 0.9	97	15	36	10	52	.69		.41	0	4	24	3	4	s.	George B. Stocking.	
Rex Creek.	Chelan.	1,135	4	69.7 ^a		95 ^a	17	49 ^a	11	34	T.		T.	0	0	16 ^a	7 ^a	3 ^a	nw.	James W. Nicol.	
Ritzville.	Adams.	1,825	12								.05	-.24	.05	0	1					Agent N. P. Ry.	
Rock Lake.	Whitman.	1,910	5	71.0 ^a		106 ^a	15	40 ^a	11	52 ^a	.29		.23	0	2	25	5	1	sw.	P. M. Ramsey.	
Rosalia.	do.	2,425	19	68.4	+ 3.4	97	15	43	8	42	.22	-.66	.18	0	2	23	8	0	sw.	Hans Mumm.	
Russell's Ranch.	Yakima.	2,870	2								.18		.17	0	2	23	8	0	w.	Miss Maggie M. Russell.	
Seattle.	King.	123	20	65.0	+ 1.5	92	16	50	8	32	.18	-.51	.12	0	4	14	9	8	n.	U. S. Weather Bureau.	
Sedro-Woolley.	Skagit.	38	14	63.8	+ 1.4	95	13	41	11	49	.60	-.81	.25	0	7	20 ^a	8 ^a	2 ^a	sw.	Mrs. H. L. Devin.	
Sixpound.	Klickitat.	1,240	4	77.3 ^a		109 ^a	16	42 ^a	8	40	T.		T.	0	0	21 ^a	8 ^a	1 ^a	sw.	C. E. Comstock.	
Skagit Power Dam.	Whatcom.	510	1	68.6		105	24	45	11	51	.68		.25	0	4	20	3	8	nw.	Skagit Power Co.	
Snohomish.	Snohomish.	100	17	63.4	+ 0.7	94	16†	40	11	50	.51	-.68	.40	0	5	18	4	9	nw.	Warren Hodge.	
Snoqualmie Falls.	King.	567	12	67.2		100	15	42	11	45	1.00	-.19	.67	0	6	22	2	6	w.	O. N. Wiswell.	
Snyder's Ranch.	Okanogan.	2,200	2	65.1		109	13	34	12	72	T.		T.	0	0	26	5	0	w.	G. M. Snyder.	
South Bend.	Pacific.		16	60.5	- 2.1	96	13	39	11	45	.78	-.24	.34	0	6	12	10	9	w.	Mrs. Winifred E. Bucking-	
Spokane.	Spokane.	1,943	30	70.7	+ 1.9	98	16	48	1	41	.25	-.42	.06	0	4	16	9	6	nw.	U. S. Weather Bureau.	
State University.	King.	170	2	63.7		94	16	42	18	32	.68		.62	0	3	15	10	6	w.	University of Washington.	
Stokes Ranch.	Okanogan.	2,670	2								.15		.14	0	2	26	5	0	w.	Charles W. Gunn.	
Sumner.	Pierce.	77	3	62.4 ^a		94	24	39 ^b	27	46 ^b	.31		.15	0	5	20	3	8	nw.	H. E. Thompson.	
Sunnyside.	Yakima.	740	16	72.2	+ 0.5	105	15†	41	8	49	0	-.23	0	0	0	25	6	0	nw.	U. S. Reclamation Service.	
Tacoma.	Pierce.	213	25	64.2	+ 0.8	92	24	48	11	34	.06	-.60	.04	0	2	14	7	10	n.	U. S. Weather Bureau.	
Tatoosh Island.	Chelan.	86	26	55.1	0	73	14	44	28	23	0.44	- 1.33	.32	0	4	12	6	13	s.	Do.	
Tieton.	Yakima.	2,000	2	66.8		101	15	41	9	45	T.		T.	0	0	23	8	0	w.	U. S. Reclamation Service.	
Tonasket.	Okanogan.	945		75.1		105	15	47	2	42	0		0	0	0	20	10	1	n.	E. H. Twilight.	
Touchet.	Walla Walla.	556	4	73.8		107	16	40	11	54	T.		T.	0	0	28	1	2	sw.	D. W. Dorrance.	
Touchet Ridge.	Columbia.	2,500	2										T.	0	0	23	8	0	sw.	R. H. King.	
Trinidad.	Douglas.	900	7	78.8		107	15†	51	10	39	.06		.06	0	1	29	2	0	nw.	J. C. Wheeler.	
Vancouver.	Clarke.	100	36	68.6	+ 1.6	99	24	45	8	43	.11	-.81	.10	0	2	19	10	2	nw.	A. A. Quarnberg.	
Vashon Island.	King.	40	22	62.3	- 0.7	86	16†	38	12	36	.10	-.44	.04	0	3	22	1	8	n.	Miss Gertrude McClintock.	
Wahluke.	Grant.	410	7	78.0		109	16	51	10	42	0		0	0	0	27	4	0	n.	F. C. Koppen.	
Wallace.	Okanogan.	4,000	2								.10		.05	0	3	20	10	1	s.	G. A. Wallace.	
Walla Walla.	Walla Walla.	1,000	27	77.1	+ 3.0	108	16	50	8	39	T.		T.	0	0	25	5	1	s.	U. S. Weather Bureau.	
Washougal.	Skamania.	550	11	65.9	+ 0.6	95	24	44	9	41	.11	- 1.03	.07	0	3	23	4	4	w.	F. M. Grout.	
Waterville.	Douglas.	2,624	21	68.6	+ 1.9	104	15	41	11	52	0		.45	0	0	0	28	2	4	w.	O. R. Hopewell.
Wenatchee, near.	Chelan.	1,169	12	71.7	+ 2.2	100	16	46	10	33	T.		T.	0	0	26	4	1	w.	George A. Pitcher.	
White Salmon.	Klickitat.	325		71.7		103	14	49	11	44	T.		T.	0	0	28	3	0	w.	C. W. J. Reckers.	
Wilbur.	Lincoln.	2,203	12	68.2 ^b																	

TABLE 1.—Climatological data for July, 1911. District No. 12—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.		
Oregon—Continued.																				
Dayville.	Grant.	2,200	17	68.4	- 0.5	99	15†	38	8	53	0.14	- 0.24	0.11	0	2	29	2	0	nw.	Dr. J. Campbell-Martin.
Deadwood.	Lane.	350	1	66.2		101	16	66	21	53	T.		T.	0	0	24	5	2	nw.	Jos. Slemmons.
Doraville.	Columbia.	690	10	63.8	+ 1.3	96	16†	43	9	44	0.14	- 0.24	0.07	0	4	18	5	8	nw.	Jos. Hackenberg.
Drain.	Douglas.	300	9	68.2		102	15†	40	8†	55	0.01		0.01	0	1	28	3	0	nw.	Ira Wimberly.
Echo.	Umatilla.	625	7	76.6		110	15	48	12	50	T.		T.	0	0	28	3	0	w.	R. B. Stanfield.
Ella.	Morrow.	830	21	77.0		112	16	48	8	45	T.	- 0.13	T.	0	0	28	3	0	sw.	Carl F. Troedson.
Eugene.	Lane.	449	21	67.4	+ 1.8	98	16	42	8	41	0.07	- 0.47	0.06	0	2	11	19	1	nw.	F. L. Barker.
Fairview.	Coos.	142	15	58.0	- 3.4	95	16	40	1†	45	0.00	- 0.52	0.00	0	0	28	1	2	nw.	Wm. Bettys.
Falls City.	Polk.	355	14	65.4	+ 2.2	101	16	36	8	48	0.03	- 0.44	0.03	0	1	28	3	0	e.	Chas. F. Vick.
Forest Grove.	Washington.	220	22	70.1	+ 4.7	103	16	40	9	48	0.00	- 0.47	0.00	0	0	18	10	3	n.	Pacific University.
Gardiner.	Douglas.	72	21																	J. S. Gray.
Glendale.	do.	1,441	7	69.2	+ 6.5	109	16	37	9	58	T.	- 1.23	T.	0	0	28	3	0	nw.	B. J. Simpson.
Glenora.	Tillamook.	575	20	64.6	+ 1.9	103	16	37	11	55	0.70	- 0.53	0.54	0	3	24	3	4	nw.	Mrs. Jennie A. Reeher.
Gold Beach.	Curry.	40	10																	
Granite.	Grant.	4,680	6	68.6		95	16	28	10	52	T.		T.	0	0	15	16	0	n.	L. N. Ford.
Grants Pass.	Josephine.	956	23	72.2	+ 2.6	110	16	37	8	56	0	- 0.11	T.	0	0	27	4	0	sw.	John B. Paddock.
Grass Valley.	Sherman.	2,381	10																	Agent O. W. R. & N. Co.
Headworks.	Clackamas.	719	9	68.3		104	24	35	11	39	0.40	- 1.18	0.18	0	3	22	7	2	ne.	Portland Waterworks.
Heppner.	Morrow.	1,950	21	71.2	+ 2.4	103	16	42	8	40	T.	- 0.57	T.	0	0	26	4	1	w.	Ralph M. Kenton.
Hermiston.	Umatilla.	451	5	75.1		110	16	46	12	49	T.		T.	0	0	30	1	0		C. W. Kellogg.
Hermoso Rio.	Crook.	2,300																		Carl T. Hubbard.
Hood River.	Hood River.	300	21	72.4	+ 5.1	106	15	46	28	47	0.00	- 0.19	0.00	0	0	29	2	0	w.	H. L. Hasbrouck.
Huntington.	Baker.	2,165	10	81.5		105	17	60	1	35	0.00		0.00	0	0	18	13	0	e.	L. Connell.
Jacksonville.	Jackson.	1,640	23	73.4	+ 3.5	105	16	41	1	46	T.	- 0.19	T.	0	0	28	3	0		E. Britt.
Joseph.	Wallowa.	4,400	22	65.2	+ 2.6	96	15	32	8	44	0.00	- 0.91	0	0	0	26	4	1	s.	F. F. McCully.
Kerby.	Josephine.			72.4		108	15†	40	1	57	0.00		0.00	0	0	29	2	0		C. T. Canfield.
Klamath Agency.	Klamath.	4,169	3	60.8		92	17†	28	1	54	50		50	0	1	25	5	1	s.	Edson C. Watson.
Klamath Falls.	do.	4,100	22	71.4		105	27	38	7	49	T.		T.	0	0	23	8	0	nw.	W. H. Heileman.
La Grande.	Union.	2,784	24	69.6	+ 0.9	103	16	36	11	50	0	- 0.64	0	0	0	29	2	0	nw.	W. A. Worstell.
Lakeview.	Lake.	4,825	28																	Bert Rice.
McKenzie Bridge.	Lane.	1,400	10	67.2	+ 2.4	108	15†	33	10†	67	0.09	- 1.07	0.05	0	2	28	0	3	sw.	George Frissell.
McMinnville.	Yamhill.	182	24	66.8	+ 2.1	102	16	41	3	53	0.08	- 0.30	0.05	0	2	22	6	3	sw.	J. H. Pruett.
Marshfield.	Coos.	34	10	57.8	- 1.6	77	23	42	7†	31	0		0	0	0				nw.	U. S. Weather Bureau.
Medford.	Jackson.	1,425		75.1		110	16	40	1	57	0.24		0.15	0	2	26	5	0	nw.	Do.
Merrill.	Klamath.	4,070	5	65.4		94	16	33	8	43	0.17		0.15	0	2	25	5	1		Mrs. Agnes Ritchson.
Metolius.	Crook.			70.2		106	16	33	8	51	0		0	0	0	25	4	2		W. E. Lottman.
Mikkalo.	Gilliam.	1,400	5	73.1		107	16	41	10†	47	0		0	0	0	31	0	0	w.	Frank Little.
Miramonte Farm.	Clackamas.	195	23	68.2	+ 3.0	101	24	42	8	47	0.08	- 0.46	0.06	0	2	25	4	2	ne.	G. Muecke.
Monroe.	Benton.	350	14	67.2	+ 1.9	100	16	41	8†	44	0.05	- 0.27	0.03	0	2	27	3	1	n.	L. A. Peek.
Mount Angel.	Marion.	485	25	69.0	+ 1.8	97	24†	44	8	39	0.16	- 0.46	0.12	0	2	25	4	2	e.	Dr. Urban Fisher.
Mount Hood.	Hood River.	1,650	1	68.0		99	15	40	22	45	0.20		0.20	0	1	29	2	0	nw.	S. G. Babson.
Musick.	Douglas.	5,000	2	62.6		90	16	34	8	32	0.00		0.00	0	0	29	1	1	sw.	Alex. Lundberg.
Newport.	Lincoln.	69	24	57.0	- 0.7	74	24	42	11	24	0.06	- 0.80	0.05	0	2	13	8	10	nw.	William Matthews.
Paisley.	Lake.	4,600	8	71.5		95 ^a	16	39	1 ^a	39 ^a	T.		T.	0	0	26 ^a	4 ^a	0	w.	E. C. Woodward.
Paulina.	Crook.			64.4		99	16	30	1†	69	0.05		0.05	0	1	20	6	5	sw.	Orrin C. Mills.
Pendleton.	Umatilla.	1,070	22																	E. F. Averill.
Pilot Rock.	do.	1,817	3	74.2		110	16	42	31	55	0.17		0.17	0	1	30	0	1	nw.	John P. McManus.
Pompeli.	Clackamas.	3,879	16	55.8	0	91	15	34	2†	45	0.25	- 1.61	0.20	0	2	17	13	1	sw.	E. Coalman.
Portland.	Multnomah.	57	41	69.5	+ 3.2	99	24	47	9	36	0.01	- 0.53	0.01	0	1	16	10	5	nw.	U. S. Weather Bureau.
Port Orford.	Curry.	80	6	57.6		74	5	44	13†	22	0		0	0	0	17	8	6	n.	J. D. Loucks.
Prairie City.	Grant.	3,425		68.2		100	14†	33	8	52	0.22		0.22	0	1	24	7	0	sw.	A. M. F. Kirchheimer.
Prineville.	Crook.	2,864	15	65.6	+ 0.6	95	17	31	7†	56	0	0.34	0	0	0	27	4	0	nw.	George Summers.
Prospect.	Jackson.	2,800	5	59.4		100	16	31	1	53	0		0	0	0	21	8	2	s.	E. F. Graham.
Ramsey.	Wasco.	1,350	10	66.6		99	15	34	8	44	0		0	0	0	29	2	0	e.	Mrs. Iva B. Collins.
Range.	Grant.	3,500	3	66.0 ^a		99	15				0		0	0	0	20	11	0		Mrs. Emma Arbuckle.
Redmond.	Crook.			67.8		102	15	32	8	53	0		0	0	0	31	0	0	w.	E. E. Foote.
Richland.	Baker.	2,350	10	70.8 ^b		102	16	39	10	45 ^b	0		0	0	0	20 ^b	3 ^b	0 ^b		L. G. Morgan.
Riverside.	Malheur.	3,000	12																	Mrs. Leah Fairman.
Roseburg.	Douglas.	510	33	70.6	+ 4.4	105	16	43	8	50	0.03	- 0.29	0.03	0	1	22	9	0	n.	U. S. Weather Bureau.
Salem.	Marion.	120	21	69.4	+ 3.0	99	16	45	8	38	0.06	- 0.42	0.05	0	2	24	0	7	nw.	M. P. Baldwin.
Silver Lake.	Lake.	4,700	14	66.4	- 0.2	99	16	28	8	56	0.16	- 0.34	0.10	0	3	9	22	0	w.	L. W. Charles.
Siskiyou.	Jackson.	4,115	3	67.4		95	16	36	8	37	0.17		0.17	0	1	14	15	2	n.	U. S. Weather Bureau.
Sparta.	Baker.	4,150	20																	J. A. Wright.
Stafford.	Clackamas.	400	15	68.0	+ 1.7	102	24	42	9	44	0.10	- 0.70	0.08	0	2				ne.	John P. Gage.
The Dalles.	Wasco.	112	37																	S. L. Brooks.
Toledo.	Lincoln.	75	21	62.6	+ 1.5	95	23	45	1†	40	0	- 0.56	0	0	0	29	2	0	nw.	C. B. Crosno.
Umatilla.	Umatilla.	340	23	78.4	+ 3.0	109	16	53	11	44	T.	- 0.18	T.	0	0	27	2	2	sw.	Mrs. Helen T. Duncan.
Vale.	Malheur.	2,242	19	73.4	+ 3.0	104	16	40	9	52	0.03	- 0.25	0.03	0	1	31	0	0	ne.	H. P. Osborne.
Van.	Harney.	3,506	6																	George Howe.
Wallace Orchard.	Polk.	170	2	69.1		100	24	44	9†	46	T.		T.	0	0	15	16	0		Charles A. Park.
Wallowa.	Wallowa.	2,935	8	64.8		99	16	32	10†	57	T.		T.	0	0	16	7	8	nw.	L. J. Coverstone.
Wamie.																				

[illegible]

TABLE 2.—*Daily precipitation for July, 1911. District No. 12—Continued.*

[illegible]

TABLE 2.—Daily precipitation for July, 1911. District No. 12—Continued.

[illegible]

Stations.	Watershed.	Day of month.																														Total.				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Oregon—Continued.																																				
Diamond	SE. Drainage													.13	T.																	0.13				
Doraville	Columbia		.02	.07	T.		T.	.01	T.					.01	.04							T.										T.	0.14			
Drain	Umpqua							T.						T.																			0.01			
Dufur	Columbia		T.																														T.	0.00		
Duncan	Umatilla							T.																									T.	0.00		
Echo	do							T.																									T.	0.00		
Ella	Columbia							T.																									T.	0.00		
Embodv	SE. Drainage												T.				T.									.22				T.			T.	0.22		
Eugene	Willamette							.01						.06																				0.00		
Fairview	Coast																																	0.00		
Falls City	Willamette								.03																									0.03		
Fir Glen	Coast																																	0.00		
Florence	do				.04																													0.04		
Forest Grove	Willamette											T.	T.	T.		T.	T.	T.	T.	T.						.11	T.				T.		0.00			
Fort Rock	SE. Drainage													T.																			T.	0.11		
Gallie	Rogue													T.																				0.00		
Gardiner	Umpqua																																	0.00		
Gleace	Columbia																																	0.00		
Gibbon	Umatilla		.10						.10																									.20	T.	0.00
Glendale	Umpqua																																	0.00		
Glenora	Coast						.14	.02	.54																									0.70		
Gold Beach	Rogue																																			

TABLE 2.—Daily precipitation for July, 1911. District No. 12—Continued.

Stations.	Watershed.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oregon—Continued.																																	
Seneca.....	Sout heast Drainage.														.15																		0.15
Silver Lake.....	do.....														.02					.04							.10	T.					0.16
Siskiyou.....	Rogue.....																										.17						0.17
Sisters.....	Deschutes.....																																0.00
Sparta.....	Snake.....																.02		.01														0.03
Stafford.....	Willamette.....			.02				.08																									0.10
Starkey.....	Gnd. Ronde.....																																0.00
Summit.....	Willamette.....			.05			T.	.04														T.											0.09
Summit Prairie.....	Deschutes.....													T.																			T.
Susanville.....	John Day.....							T.						.03																			0.03
Tamarack.....	do.....							T.						.15																			0.15
Telocaset.....	Snake.....																																0.00
The Dalles.....	Columbia.....																																T.
Tinroof Cabin.....	Umatilla.....							T.						T.																			T.
Toledo.....	Coast.....																																0.00
Trail.....	Rogue.....																																0.00
Trask.....	Coast.....																																T.
Umatilla.....	Columbia.....													T.																			T.
Unity.....	Snake.....														.12	.03					.05												0.20
Vale.....	Malheur.....	.03																															0.03
Valley Falls.....	South e a s t Drainage.																																
Van.....	Malheur.....																																T.
Wallace Orchard.....	Willamette.....							T.																									T.
Walloupa.....	Gnd. Ronde.....	.10																															0.10
Wallowa.....	do.....							T.																									T.
Wamie.....	Deschutes.....																																0.00
Warmspring.....	do.....													T.																			T.
Wasco.....	Columbia.....																																0.00
Welches.....	do.....	.06	.10	T.			T.	.30						T.								T.											0.46
Westfall.....	Malheur.....			.07																													0.07
Weston.....	Walla Walla.....	T.						T.	.05						T.																		0.10
Williams.....	Rogue.....																													.10			0.10
Yonna.....	Interior Drainage.														.12				T.								.01						0.13

* Precipitation included in that of the next measurement.
† Separate dates of falls not recorded.
|| Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures for July, 1911. District No. 12, Columbia Valley.

Date.	Montana.						Afton, Wyo.		Idaho.																							
	Kallispell.		Missoula.		Boise.				Bonners Ferry.		Hot Spring.		Lewiston.		Mackay.		Meadows.		Pocatello.		Salmon.		Shoshone.		Vernon.		Wallace.					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
1....	65	49	60	49	65	27	71	48	64	48	74	44	88	48	79	54	52	37	.....	.....	69	41	64	41	67	7	61	41	60	41	48
2....	68	42	76	38	72	29	82	52	71	44	88	48	85	56	66	40	.....	.....	.....	.....	76	43	72	40	76	40	70	38	74	41	52
3....	58	52	71	50	79	32	84	55	61	42	91	58	81	63	67	47	.....	.....	.....	.....	86	49	76	45	83	50	78	40	67	52	57
4....	73	48	78	48	80	38	85	56	71	44	90	57	85	61	79	47	.....	.....	.....	.....	84	54	81	48	82	50	78	42	75	57	57
5....	75	43	84	45	82	38	90	56	83	34	92	55	94	56	82	55	.....	.....	.....	.....	86	56	84	51	84	50	84	47	86	42	86
6....	86	48	90	50	83	44	96	64	84	45	100	61	89	64	88	50	.....	.....	.....	.....	90	58	90	53	89	56	86	52	84	52	52
7....	66	46	70	52	83	44	76	54	72	40	93	61	72	58	86	45	.....	.....	.....	.....	84	63	84	54	84	60	78	49	60	50	50
8....	60	45	56	46	74	38	71	48	59	40	80	40	77	55	88	41	.....	.....	.....	.....	68	47	63	44	79	34	72	43	57	44	44
9....	70	45	72	38	73	27	81	48	68	45	83	46	80	51	83	40	.....	.....	.....	.....	78	42	78	38	78	40	72	32	70	42	42
10....	73	42	80	36	78	32	84	50	74	40	88	49	82	51	81	39	.....	.....	.....	.....	84	46	80	40	83	42	78	34	72	42	42
11....	73	44	82	38	86	31	88	52	81	37	90	50	90	50	83	45	.....	.....	.....	.....	87	48	84	43	82	45	82	41	80	40	40
12....	80	47	85	40	80	41	95	54	84	56	95	61	94	53	85	52	.....	.....	.....	.....	88	54	86	42	86	55	85	47	87	42	47
13....	84	50	92	49	83	39	96	63	91	39	101	61	100	59	88	55	.....	.....	.....	.....	92	54	90	42	89	58	87	47	93	47	47
14....	83	53	80	49	87	40	96	72	95	45	101	69	96	70	88	50	.....	.....	.....	.....	93	59	93	52	90	60	85	50	92	53	53
15....	87	57	95	48	82	46	98	67	96	56	98	64	104	63	89	55	.....	.....	.....	.....	90	59	92	53	90	61	86	50	95	50	50
16....	84	57	92	50	83	42	97	66	96	58	102	64	106	67	88	53	.....	.....	.....	.....	92	60	90	53	91	60	90	49	95	52	52
17....	82	54	96	59	85	44	99	68	95	44	102	65	100	68	88	53	.....	.....	.....	.....	93	58	91	54	90	60	85	48	90	56	56
18....	72	48	96	57	75	50	93	66	95	45	102	61	96	63	83	50	.....	.....	.....	.....	87	68	86	52	87	69	82	52	83	50	50
19....	77	47	88	48	70	41	94	60	87	52	98	61	98	61	87	49	.....	.....	.....	.....	89	56	88	51	87	58	84	45	88	47	47
20....	83	52	93	50	80	42	94	67	95	47	99	63	98	59	80	62	.....	.....	.....	.....	81	59	91	55	85	55	82	47	89	46	46
21....	87	50	88	54	84	40	92	67	97	47	100	66	93	60	84	48	.....	.....	.....	.....	89	59	85	53	86	60	81	54	85	46	46
22....	76	55	79	51	78	39	82	58	97	46	83	55	84	60	83	50	.....	.....	.....	.....	81	67	84	56	84	55	81	49	74	48	48
23....	78	48	82	50	81	31	87	53	93	44	80	57	92	57	80	53	.....	.....	.....	.....	81	48	78	44	82	45	79	39	86	45	45
24....	85	49	93	50	83	36	92	58	95	50	98	52	101	61	94	46	.....	.....	.....	.....	88	48	86	52	86	57	86	49	94	49	49
25....	90	52	96	48	81	41	94	62	83	51	89	56	102	64	90	50	.....	.....	.....	.....	86	50	93	50	87	56	86	47	94	50	50
26....	82	56	91	50	77	40	88	67	84	52	94	56	89	62	92	53	.....	.....	.....	.....	84	62	85	51	84	57	80	45	82	56	56
27....	79	46	84	43	78	37	85	56	84	40	92	58	90	55	90	48	.....	.....	.....	.....	84	57	84	50	82	53	78	49	80	41	41
28....	84	46	90	42	79	33	92	57	92	48	98	52	99	56	86	45	.....	.....	.....	.....	87	50	85	43	86	45	82	37	89	44	44
29....	87	46	91	46	83	35	89	62	82	42	95	53	98	60	85	50	.....	.....	.....	.....	88	53	86	45	82	51	85	44	86	45	45
30....	62	48	81	48	76	42	87	61	82	44	92	60	86	65	88	50	.....	.....	.....	.....	81	59	85	42	82	51	76	53	78	51	51
31....	70	42	80	38	77	36	87	55	76	46	91	53	91	54	87	54	.....	.....	.....	.....	82	49	80	43	82	47	77	38	82	42	42
Mns..	76.7	48.6	83.6	48.0	79.3	37.9	88.5	58.8	83.5	45.5	98.2	56.9	91.3	59.2	83.5	48.8	84.8	54.4	83.7	47.7	84.0	52.2	80.5	45.1	81.5	47.4	81.5	47.4

Washington.																													
Date.	Aberdeen.		Blaine.		Colville.		Kosmos.		Lakeside.		North Head.		North Yakima.		Odessa.		Port Crescent.		Seattle.		Sixprong.		Spokane.		Tacoma.		Tatoosh Island.		
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
1....	59	54	62	46	74	52	63	50	82	52	56	51	80	47	84	39	59	49	64	53	79	49	67	48	64	53	53	49	49
2....	64	50	64	52	77	55	72	41	80	57	57	51	85	55	85	40	57	48	68	52	84	61	77	54	68	51	56	49	49
3....	59	50	66	51	70	54	63	51	78	59	56	52	82	56	88	42	55	47	60	51	84	61	70	54	62	53	57	48	48
4....	71	50	69	40	80	41	77	54	84	53	58	54	92	54	90	45	63	42	73	54	89	55	78	59	73	54	56	48	48
5....	81	46	75	46	88	42	88	45	89	54	60	53	93	60	94	44	63	41	77	54	95	61	85	56	80	54	62	48	48
6....	60	49	68	54	88	43	82	50	81	63	57	51	93	62	82	45	56	48	65	53	86	60	84	57	65	51	55	51	51
7....	64	49	65	50	77	43	60	55	74	51	57	50	76	45	80	40	58	48	62	50	74	48	65	49	64	50	57	50	50
8....	63	46	64	50	78	46	61	48	77	52	56	52	81	50	85	41	59	47	61	50	80	42	68	48	63	49	58	50	50
9....	68	50	67	49	78	47	71	39	79	54	59	52	84	53	86	44	59	49	66	52	85	49	74	52	69	50	58	50	50
10....	69	49	67	51	83	40	84	38	80	52	55	51	88	56	88	43	61	45	68	51	85	49	77	51	67	52	59	48	48
11....	73	50	72	40	85	37	94	45	83	52	54	48	90	53	88	42	69	38	70	52	90	54	81	48	69	48	58	46	46
12....	85	44	78	42	86	40	99	43	89	54	62	48	94	58	88	41	78	41	76	57	95	68	86	55	74	55	68	49	49
13....	96	52	78	46	96	54	96	50	96	56	80	54	99	61	97	43	84	47	81	61	100	69	94	53	80	59	68	50	50
14....	83	53	82	48	99	48	95	56	93	62	56	52	101	68	101	62	82	52	89	64	103	77	95	58	89				

TABLE 3.—Maximum and minimum temperatures for July, 1911. District No. 12—Continued.

Date.	Walla Walla, Wash.		Oregon.																					
			Ashland.		Baker.		Eugene.		Gold Beach.		Hermiston.		Marshfield.		Portland.		Prineville.		Roseburg.		The Dalles.		Vale.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	78	53	79	43	71	48	76	51	.....	.....	75	51	67	46	72	54	84	42	81	45	.....	.....	74	45
2.....	85	60	85	50	80	48	76	48	.....	.....	80	53	66	51	72	56	80	41	84	50	.....	.....	89	41
3.....	83	63	84	55	75	50	76	52	.....	.....	87	62	69	53	66	57	88	40	82	54	.....	.....	92	50
4.....	86	64	90	57	77	51	78	57	.....	.....	90	62	69	56	73	60	89	41	85	59	.....	.....	93	57
5.....	95	60	97	59	89	49	87	51	.....	.....	95	55	73	50	88	59	94	46	94	54	.....	.....	97	54
6.....	84	58	87	47	88	53	86	52	.....	.....	94	68	63	47	71	56	83	40	76	53	.....	.....	100	54
7.....	68	52	71	46	61	44	66	50	.....	.....	80	51	64	42	63	53	78	31	67	51	.....	.....	94	55
8.....	75	50	81	43	69	37	70	42	.....	.....	80	51	66	42	65	50	70	42	79	43	.....	.....	81	47
9.....	81	51	84	45	75	42	74	44	.....	.....	85	55	64	43	69	47	76	37	83	45	.....	.....	87	40
10.....	82	54	88	47	78	40	73	48	.....	.....	87	53	63	45	72	53	86	39	80	48	.....	.....	92	44
11.....	88	54	92	52	81	41	81	46	.....	.....	91	49	63	44	80	56	89	41	88	48	.....	.....	91	55
12.....	94	55	94	59	84	50	89	50	.....	.....	97	46	71	43	91	60	89	39	96	53	.....	.....	99	50
13.....	99	62	96	64	91	55	92	52	.....	.....	101	55	73	51	97	66	90	57	89	58	.....	.....	100	56
14.....	102	74	100	66	90	66	93	57	.....	.....	102	71	65	47	92	68	82	38	98	58	.....	.....	103	67
15.....	106	72	102	66	90	58	94	58	.....	.....	108	65	64	48	94	65	87	31	103	58	.....	.....	101	61
16.....	108	73	104	70	96	60	98	62	.....	.....	110	61	70	49	97	66	83	40	105	62	.....	.....	104	61
17.....	98	74	100	66	92	61	97	61	.....	.....	109	67	74	51	95	66	95	58	98	64	.....	.....	102	59
18.....	95	69	95	64	87	57	94	53	.....	.....	91	61	70	46	94	62	91	54	96	56	.....	.....	99	60
19.....	98	71	92	62	89	51	81	47	.....	.....	99	51	64	51	84	57	92	52	88	54	.....	.....	101	51
20.....	96	70	89	56	91	56	76	51	.....	.....	95	60	66	54	73	54	90	50	83	50	.....	.....	102	57
21.....	89	62	84	55	85	52	75	49	.....	.....	85	62	65	53	70	55	87	45	75	49	.....	.....	97	57
22.....	84	57	89	49	78	44	78	43	.....	.....	87	65	68	45	76	56	81	45	85	47	.....	.....	89	56
23.....	95	60	99	50	84	45	92	48	.....	.....	96	53	77	46	96	60	90	41	100	50	.....	.....	92	47
24.....	100	71	96	67	90	52	96	57	.....	.....	100	54	71	48	99	67	89	45	101	58	.....	.....	98	47
25.....	100	76	86	62	88	54	89	61	.....	.....	98	52	63	54	84	58	89	50	88	65	.....	.....	98	50
26.....	90	68	89	61	84	55	87	50	.....	.....	95	54	64	53	76	53	90	51	88	55	.....	.....	91	50
27.....	91	63	93	54	81	45	84	46	.....	.....	94	55	64	46	85	54	91	50	92	49	.....	.....	94	50
28.....	98	65	97	60	90	47	90	48	.....	.....	100	51	61	50	89	58	94	45	98	52	.....	.....	96	45
29.....	95	72	90	64	87	55	88	50	.....	.....	95	53	66	51	82	59	92	46	87	56	.....	.....	94	42
30.....	86	65	86	55	79	49	85	47	.....	.....	96	54	65	54	75	54	90	50	87	47	.....	.....	92	58
31.....	88	63	80	52	82	44	81	46	.....	.....	90	55	65	54	75	56	87	46	84	48	.....	.....	96	45
Means.....	90.9	63.3	90.3	56.3	83.3	50.3	83.9	50.9	.....	.....	93.3	56.9	66.9	48.8	81.1	57.9	87.0	44.1	88.4	52.9	.....	.....	94.8	52.1

a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

CORRECTION FOR MAY, 1911, REVIEW.

On page 793, the formula in the middle of the first column should read: $0.674 \frac{1-r^2}{\sqrt{n}}$

The chart on page 794 should appear as Fig. 2 on page 795.

The chart on page 795 should appear as Fig. 1 on page 794.

On page 794, second column, sixth line, there should be a period after the first 729.22. -502.5, etc., begins a new sentence.

WEATHER, FORECASTS, AND WARNINGS JULY, 1911.

By EDWARD H. BOWIE, District Forecaster.

During the first half of the month the barometric pressure was above the normal over middle latitudes of the North Atlantic Ocean, and markedly so over the British Isles and Iceland; during the latter half the pressure was generally below normal over these regions, with well-defined depressions over the Azores on the 17th and 20th and again after the 25th, while sharp falls to low pressure were reported from the British Isles on the 16th and during the last five days of the month. Over continental Europe and Siberia the pressure was continually above the normal, except from the 9th to 18th over Russia, and on the 1st and 2d and again on the 17th to 19th over southwestern Europe. The region of the Philippines and the China seas appears to have been the locus of marked storm activity during the month, typhoons passing over the Philippines at the beginning of the month, on the 14th and 15th, and again during the last decade of the month. The last-named disturbance recurved and passed over Japan, causing disastrous floods and the loss of 100 or more lives. Over Alaska and the North Pacific Ocean pressure was near or below normal from the 1st to 10th, abnormally high from the 11th to 19th, and fluctuating near the normal after that date, although a sharp fall to 29.30 inches was recorded at Nome on the 29th.

Unusual heat prevailed over the eastern portions of the United States during the first 11 days of the month and during the latter half on the Pacific coast. It is reported that the month was one of extreme heat over the British Isles and continental Europe. Drought was severe in India, unquestionably due to the prevalence of abnormally high pressure over the interior of Asia during June and the greater part of July, which prevented the development of monsoons of normal force. Widespread rains during the second decade of July afforded much relief from the preceding drought in the middle-western and southwestern parts of the United States.

The first week in July was marked by phenomenally warm weather over the Northern and Middle States, from the Atlantic coast to the Missouri Valley and the Middle Plains States. Temperatures on several days exceeded 100° in the central valleys, eastern Nebraska, Kansas, and Oklahoma, and also at more northern stations in upper Michigan, New England, and the interior of New York and Pennsylvania. For intensity, this warm wave was the severest and most widespread since the summer of 1901. At a number of points in New England, the temperatures recorded exceeded all previous high temperature records, while at a number of points in the Ohio Valley and the Middle West previous high records were equaled and in some instances exceeded. This warm wave was the culmination of a prolonged period of high temperatures in the Middle West. On the 5th a depression passed over the Middle West and reached the Atlantic coast on the 7th. It was attended by local showers and thunderstorms and was followed by an area of high barometric pressure that dispersed the warm wave previously referred to. On the 5th a marked fall in pressure

set in at Sitka, Alaska, and on Friday, the 7th, a well-defined disturbance appeared in the Northwest. It moved slowly southeastward to the northern plains States and thence northward, remaining stationary until the 10th in Alberta. This depression caused general showers in the plains States, the Mississippi Valley, and the lake region. It was preceded by a change to considerably warmer weather on the 9th and 10th in northeastern districts, and was followed by abnormally cool weather for the season on these dates in the Rocky Mountain region. Frost occurred in Wyoming, and during the night of the 8th there was light snow at the Yellowstone Park station. The weekly forecast of the 2d, which referred to the warm wave and announced its termination several days in advance, follows:

The coming week will be one of moderate temperature in the South Atlantic and Gulf States and generally over the region west of the Mississippi River. High temperature will prevail the first part of the week in the Northern and Middle States east of the Mississippi River, followed by a change to lower temperature in these districts about Wednesday. A barometric depression that now covers the Rocky Mountain region will drift slowly eastward, preceded and attended by local showers and thunderstorms, and cross the Mississippi Valley Tuesday or Wednesday and the Middle Atlantic States Thursday or Friday. It will be followed by cooler weather over the Plains States, the Mississippi Valley, and the region east thereof.

Continued high temperatures, causing hundreds of deaths and much suffering, marked the weather for the week ending July 10 in northern and central districts east of the Mississippi River. A change to cooler weather set in over the upper Missouri Valley about the middle of the week and moved eastward, preceded by scattered local showers.

On July 9 the following forecast for the week ending the 16th was issued:

In the Middle Atlantic and New England States the coming week will begin with warm and generally fair weather, followed by local thundershowers and a change to lower temperature Tuesday or Wednesday and moderate temperature and probably fair weather thereafter until the close of the week, when showers are again probable. In the Southern States the week will be one of seasonal temperatures, with frequent thundershowers. A change to lower temperature, attended by showers, will overspread the middle Mississippi and Ohio Valleys and the region of the Great Lakes Monday or Monday night and will be followed by generally fair weather and moderate temperature in these districts until the latter part of the week, when showers are again probable. Over the Plains States, the Rocky Mountain and Plateau regions, and the Pacific States the next several days will be generally fair, with moderate temperature, probably followed by a period of unsettled weather and local showers after Wednesday, except in the western portion of the Plateau region and in California, where the weather will be generally fair throughout the week.

The weather conditions were true to those forecast. Mean temperatures for the week ending the 17th were generally below normal east of the Mississippi River, except in the lower Lake region and New England. West of the Rockies the temperature was decidedly above normal, especially in Washington and Oregon, where maximum temperatures of nearly 110° were reported, and in northern California they exceeded that figure. Precipitation was generally deficient, except in the lower Lake region, the Ohio Valley, the Middle Atlantic States.

and the South, where rains were general and heavy. Advisory warnings of high westerly winds were issued for Lake Superior on the afternoon of the 10th and all stations on that lake reported strong westerly winds the following day.

On the 12th the Northern Hemisphere weather map showed a material reduction in the magnitude of the high-pressure area over the Atlantic Ocean and a corresponding increase in pressure over the North Pacific Ocean and Alaska. This being a general reversal in the pressure distribution over these areas, the following special bulletin was issued on that date:

For a prolonged period the barometric pressure has been above normal over the Atlantic Ocean and low over the northwestern portion of the American Continent. The International weather map of Wednesday showed a reversal in this pressure distribution—an extensive area of high barometric pressure appearing over Alaska, while the pressure over the middle latitudes of the Atlantic Ocean has fallen to below normal. This changed pressure distribution is strongly indicative of the dissipation of the warm weather over the Eastern States and the Middle West in the immediate future and the beginning of a period of moderate temperature in those districts lasting through the remainder of this and continuing into next week.

The cool weather announced in this bulletin overspread all parts of the country east of the Rocky Mountains on the 13th and 14th, and on the night of the 16th there were frosts in the cranberry marshes of Wisconsin, warnings of which were issued in the afternoon of that date. A change to warmer weather set in over the Pacific slope on the 14th and 15th and continued until the 18th and 19th, when a moderation began.

The following editorial is from the *Courier-Post*, Hannibal, Mo., of July 19:

That the theory of meteorologists as to the immediate cause of the long-continued heat in this country is correct is demonstrated by results. They claimed that an extensive area of high barometric pressure had prevailed over the Atlantic since June 13 and that its effect was to interfere with the usual eastward movement of waves of temperature, damming up the heat, as it were. About July 8 this "wall" disappeared and the effects were soon manifested. The heat wave moved eastward and cool currents followed. The heat conditions reached Europe on the 12th, giving Berlin a temperature of 102°, while the Yellowstone Park had 36°. What caused or dissipated the crest of high pressure is, however, a mystery yet unsolved.

The following is taken from the *Globe-Democrat*, St. Louis, Mo., of July 19:

It has been six days since the head of the Government Weather Bureau predicted the end of the long hot wave. His prediction has been so signally vindicated this time that it is worthy of special note, for great are the responsibilities and numerous the unavoidable embarrassments of the Weather Bureau, chiefly because human knowledge of the elements is still elementary compared to what we may expect it to be at the end of the next 100 years. On July 12 Chief Willis L. Moore said: "For a prolonged period the barometric pressure has been above normal over the Atlantic Ocean and low over the northwestern portion of the American Continent. The international weather map of Wednesday showed a reversal in this pressure distribution—an extensive area of high barometric pressure appearing over Alaska, while the pressure over the middle latitudes of the Atlantic Ocean has fallen below normal." This, said the weather chief, would bring a long-continued cool spell. The "spell" is here, and has been since Saturday last.

On the 16th the pressure continuing relatively low over the Atlantic Ocean and high over the North Pacific and Alaska, the following forecast for the week was issued:

The barometric pressure as shown by the International Weather Chart of the 16th instant is abnormally high over the interior of Canada and over Alaska and relatively low over the Atlantic Ocean. This pressure distribution is strongly indicative of temperatures below the seasonal average the coming week in practically all parts of the country from the Rocky Mountains to the Atlantic coast. West of the Rocky Mountains temperatures will average near or above the normal with generally fair weather, except that occasional showers are probable in the southern plateau and southern Rocky Mountain regions. The week will open with generally fair weather east of the Rocky Mountains, except that showers are probable Monday in the Middle Atlantic and New England States and during the next several days in the South

Atlantic and Gulf States. An area of unsettled weather and showers will develop over the Middle West about Thursday and thence spread eastward to the Atlantic States by the latter part of the week.

For the week ending July 24, temperatures were generally below normal over the greater part of the country. Precipitation was quite general and abundant east of the Rocky Mountains except in the upper Mississippi Valley, the Dakotas, southern Texas, the Ohio Valley, the southern Appalachian Mountain region, southern and central Florida and Massachusetts. Showers occurred the first part of the week along the Atlantic coast and in the Gulf States, while during the latter part of the week showers were reported in the upper Missouri Valley and the upper lake region.

The following weekly forecast was issued July 23:

A barometric depression central Sunday over the plains States will advance eastward preceded and attended by general showers east of the Mississippi River and reach the Atlantic States Monday night or Tuesday. This disturbance will be quickly followed by rising pressure and a change to cooler weather which will overspread the Middle West Monday and the Eastern States Tuesday. Another barometric depression will appear in the Northwest Tuesday or Wednesday and advance eastward over the Middle West Wednesday or Thursday and reach the Eastern States about Friday. This disturbance will be preceded by a general change to warmer weather and in all probabilities it will be attended by showers in the North Pacific States and over much of the country from the Rocky Mountains to the Atlantic coast. No extremely high temperatures are probable during the week, except possibly in the extreme southwest and the interior of the South Pacific States, where an absence of precipitation is also probable.

The week ending July 31 was decidedly cool and was marked by a deficiency of precipitation east of the Rocky Mountains, while west of the Rockies conditions were about normal. The principal disturbance of the month formed over the northern Rocky Mountain region on the 21st, passed to the northern Plains States during the night of the 22d, and on the morning of the 23d was over the upper Mississippi Valley and showed signs of increasing intensity. It moved thence across the Great Lakes to the St. Lawrence Valley and passed over the Canadian maritime Provinces on the 25th. This disturbance gathered unusual intensity for a summer storm during its passage over the Great Lakes, the pressure at its center falling to 29.18 inches, and winds of gale force were recorded at practically all points on the Great Lakes and off the Atlantic coast from Delaware Breakwater to Eastport. The highest velocities reported were 72 miles at Buffalo and 60 miles at Toledo on the 24th. Storm warnings were displayed well in advance of the occurrence of these winds and undoubtedly prevented a considerable loss to shipping on the Great Lakes. A number of vessels that did not heed the warnings and seek shelter were lost or driven ashore. This disturbance was followed by an extensive area of high barometric pressure and unseasonably cool weather over all regions from the Plains States eastward from the 24th to 27th.

The following extract from a clipping regarding this storm is taken from the *Daily Tribune*, of Grand Haven, Mich., dated July 24:

A terrific gale lashed Lake Michigan into a fury last night. Old sailors stated freely this morning that the storm was the worst they had experienced at this time of the year. The storm started in yesterday with the wind varying in an easterly and southerly direction. The force of the blow was not felt on this shore until last night, when the wind went to the southwest and then to the northwest, settling down into a real tempest, which would have done credit to a November blow * * *. The highest velocity the wind registered at the United States Weather Bureau office in this city during the storm was 50 miles an hour at 3 o'clock this morning. For some time during the night the wind held to 48 miles steadily. The high wind is considered remarkable and out of the ordinary for this time of the year. In fact, it is recorded as one of the worst summer storms in the history of the bureau. However, the United States Weather Bureau furnished excellent service yesterday in warning sailors of the approach of the

storm. Special storm warnings were received here yesterday morning and by 10 o'clock the notice of the approach of dangerous gales was delivered to the steamboat companies.

During the night of the 27th a depression formed some distance off the middle Atlantic coast, and on the morning of the 28th the winds along the middle Atlantic and New England coasts were east to north, and rain had set in along the immediate coast. As there were evidences that this disturbance was of considerable intensity and moving north-northeast, northeast storm warnings were displayed at 9.30 a. m. on the New England coast from Stonington, Conn., to Portsmouth, N. H., and at 1.30 p. m. on the Maine coast. This storm moved northward as expected, and at 3.40 p. m. its center passed near Nantucket, where the lowest pressure was 29.38 inches. Gales were recorded the afternoon and night of the 28th in the region where storm warnings were displayed, the highest velocity being 64 miles an hour from the northeast at Nantucket, and heavy rains occurred over practically all of New England. This disturbance passed inland from the Maine coast and moved thence to the Canadian maritime Provinces with diminishing intensity on the 29th. Although the warnings were displayed well in advance of the high winds, several small vessels at sea were wrecked and 11 lives lost.

The following bulletin was issued on July 30:

The general barometric pressure shown by the International Weather Chart is such as to indicate that there will be no unseasonably high temperatures the coming week in any part of the country, except possibly in the extreme Southwest and the interior of the South Pacific States. Fairly well distributed precipitation is probable during the week in all districts from the Rocky Mountains eastward to the Atlantic coast. A barometric depression that is over the Northwest will advance slowly eastward and be attended by local showers the first part of the week in the region from the Mississippi Valley eastward. Another disturbance, which promises to be attended by general showers, will appear in the Northwest about Wednesday and move eastward, crossing the central valleys Thursday or Friday and the Atlantic States at the end of the week. This disturbance will be followed by considerably cooler weather in all Middle and Northern States from the Rocky Mountains to the Atlantic coast.

The month closed with temperatures below the normal west of the Mississippi River and in the South, while elsewhere they were above normal.

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since Jan. 1.	Average departures since Jan. 1.
New England.....	12	72.1	+3.3	+4.5	+0.6
Middle Atlantic.....	15	76.0	+1.6	+6.8	+1.0
South Atlantic.....	10	78.8	-0.2	+11.7	+1.7
Florida Peninsula*.....	7	80.5	-0.7	+11.1	+1.6
East Gulf.....	11	78.3	-2.0	+18.6	+2.7
West Gulf.....	10	80.8	-1.0	+21.7	+3.1
Ohio Valley and Tennessee.....	13	76.3	-0.5	+16.0	+2.3
Lower Lakes.....	10	72.6	+1.3	+12.5	+1.8
Upper Lakes.....	12	69.1	+1.3	+21.7	+3.1
North Dakota*.....	9	65.1	-2.9	+5.3	+0.8
Upper Mississippi Valley.....	14	75.2	+0.2	+23.0	+3.3
Missouri Valley.....	12	75.8	-0.1	+27.5	+3.9
Northern slope.....	9	65.7	-2.4	+7.0	+1.0
Middle slope.....	6	75.9	-0.8	+23.0	+3.3
Southern slope*.....	8	80.2	-0.1	+23.6	+3.4
Southern Plateau*.....	10	77.6	-2.6	-0.6	-0.1
Middle Plateau*.....	10	70.4	-0.9	+4.6	+0.7
Northern Plateau*.....	11	69.2	+0.5	-1.7	-0.2
North Pacific.....	7	62.4	+1.2	-8.7	-1.2
Middle Pacific.....	5	66.6	-0.3	-8.0	-1.1
South Pacific.....	4	70.7	+0.8	+0.4	+0.1

* Regular Weather Bureau and selected cooperative stations.

Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
New England.....	11	3.34	92	-0.3	-5.0
Middle Atlantic.....	15	3.07	72	-1.2	-7.4
South Atlantic.....	11	2.81	47	-3.2	-15.6
Florida Peninsula*.....	7	5.71	81	-1.3	-10.2
East Gulf.....	11	5.94	111	+0.6	-5.0
West Gulf.....	10	4.01	125	+0.8	-5.4
Ohio Valley and Tennessee.....	13	3.06	75	-1.0	-4.2
Lower Lakes.....	10	2.87	85	-0.4	-2.0
Upper Lakes.....	12	3.21	103	+0.1	-0.7
North Dakota*.....	9	1.90	70	-0.8	-1.0
Upper Mississippi Valley.....	15	3.34	92	-0.3	-4.5
Missouri Valley.....	12	2.77	73	-1.0	-6.7
Northern slope.....	9	1.25	76	-0.4	-2.2
Middle slope.....	6	3.98	134	+1.0	-3.7
Southern slope*.....	8	4.16	151	+1.4	-2.8
Southern Plateau*.....	10	3.10	238	+1.8	+2.7
Middle Plateau*.....	11	1.18	203	+0.6	+0.8
Northern Plateau*.....	11	0.20	20	-0.8	-2.3
North Pacific.....	7	0.19	28	-0.5	+7.3
Middle Pacific.....	7	T.	100	0.0	+3.5
South Pacific.....	4	0.03	100	0.0	+7.4

* Regular Weather Bureau and selected cooperative stations.

Average relative humidity and departure from the normal.

Districts.	Average.	Departure.	Districts.	Average.	Departure.
New England.....	75	-5	Missouri Valley.....	55	-11
Middle Atlantic.....	70	-4	Northern slope.....	56	+4
South Atlantic.....	76	-4	Middle slope.....	62	+2
Florida Peninsula.....	79	+1	Southern slope.....	64	+5
East Gulf.....	79	+1	Southern Plateau.....	54	+16
West Gulf.....	74	0	Middle Plateau.....	46	+14
Ohio Valley and Tennessee.....	66	-3	Northern Plateau.....	36	-5
Lower Lakes.....	64	-5	North Pacific.....	72	+7
Upper Lakes.....	67	-5	Middle Pacific.....	60	-6
North Dakota.....	60	-6	South Pacific.....	66	+2
Upper Mississippi Valley.....	60	-8			

Average cloudiness and departure from the normal.

Districts.	Average.	Departure.	Districts.	Average.	Departure.
New England.....	5.1	0.0	Missouri Valley.....	4.2	0.0
Middle Atlantic.....	4.7	-0.2	Northern slope.....	3.9	+0.2
South Atlantic.....	5.5	+0.3	Middle slope.....	5.1	+1.0
Florida Peninsula.....	5.7	+0.3	Southern slope.....	5.1	+0.6
East Gulf.....	6.8	+1.4	Southern Plateau.....	4.3	+1.0
West Gulf.....	5.6	+1.5	Middle Plateau.....	4.1	+1.0
Ohio Valley and Tennessee.....	5.1	+0.5	Northern Plateau.....	2.4	-0.3
Lower Lakes.....	3.8	+0.7	North Pacific.....	4.5	-0.1
Upper Lakes.....	4.5	-0.1	Middle Pacific.....	4.1	+0.6
North Dakota.....	3.8	-0.6	South Pacific.....	3.6	+0.8
Upper Mississippi Valley.....	4.4	+0.1			

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Abilene, Tex.....	31	60	se.	Mount Tamalpais, Cal.....	2	50	nw.
Buffalo, N. Y.....	24	72	w.	Do.....	17	56	nw.
Do.....	25	68	w.	Mount Weather, Va.....	25	54	w.
Cleveland, Ohio.....	24	52	w.	Nantucket, Mass.....	28	65	ne.
Columbus, Ohio.....	24	63	w.	New York, N. Y.....	21	62	nw.
Detroit, Mich.....	24	51	w.	Do.....	24	57	sw.
El Paso, Tex.....	21	50	w.	Pierre, S. Dak.....	8	50	w.
Grand Haven, Mich.....	24	51	w.	Point Reyes Light, Cal.....	7	54	nw.
Green Bay, Wis.....	15	56	nw.	St. Paul, Minn.....	4	54	n.
Huron, S. Dak.....	30	52	ne.	Toledo, Ohio.....	24	60	sw.
Marquette, Mich.....	24	54	nw.				

RIVERS AND FLOODS, JULY, 1911.

By H. C. FRANKENFIELD, Professor of Meteorology.

There were no floods during the month except in the Rio Grande, the Pecos River, and the upper portion of the Blue River. As early as July 3 flood warnings were issued for that portion of the Rio Grande from San Marcial, N. Mex., to El Paso, Tex., and a stage of 16.5 feet or higher was forecast for El Paso within three days. On July 7 the stage was 17.3 feet, 2.3 feet above the flood stage. Warnings for higher stages were also issued on July 16 and 19, and on July 21 an estimated stage of 18 feet was reached. On July 24 warnings were issued for that portion of the river between Espanola and San Marcial, N. Mex. The river was close to the flood stage at Albuquerque, N. Mex., on July 25, and above the flood stage at Rincon, N. Mex., from July 27 to 29, inclusive, with a crest stage of 11 feet, or 3 feet above the flood stage, on July 28. From San Marcial to El Paso the river was above the flood stage for the greater portion of the month. Flood stage was also reached in the Pecos River at Carlsbad, N. Mex., on July 26, and interests were advised. The dam was broken and great damage to ranches and irrigated farms was reported.

Heavy rains caused a sharp rise in the rivers of Texas shortly after the middle of the month, and advisory

warnings were issued. Flood stages were not reached. Heavy local rains caused a flood in the Blue River between Beatrice, Nebr., and Blue Rapids, Kans. At Beatrice the river rose 25 feet in 26 hours, reaching a stage of 26 feet at 10 a. m., July 23, 12 feet above the flood stage, while at Blue Rapids the crest stage was 18 feet, 4 feet above the flood stage, on July 25. Railroad traffic was interrupted and there was considerable other damage of the usual character.

Other rivers east of the Rocky Mountains were unusually low, and in many of them the lowest stages of record were reached.

The Columbia River fell steadily after reaching the crest of the annual rise during the second and third decades of June.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.

SPECIAL PAPERS ON GENERAL METEOROLOGY.

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Librarian.

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Anonymous publications are indicated by a —.

Aachen. Meteorologisches Observatorium.

Deutsches meteorologisches Jahrbuch. Aachen. 1909. Karlsruhe. 1911. 56 p. f°.

Angenheister, Gustav Heinrich.

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C. FITZHUGH TALMAN, Librarian.

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CONDENSED CLIMATOLOGICAL SUMMARY.

In the following table are given, for the various sections of the Climatological Service of the Weather Bureau, the average temperature and rainfall, the stations reporting the highest and lowest temperatures with dates of occurrence, the stations reporting the greatest and least monthly precipitation, and other data, as indicated by the several headings.

The mean temperatures for each section, the highest and

lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperature and precipitations are based only on records from stations that have 10 or more years of observations. Of course the number of such records is smaller than the total number of stations.

Temperature and precipitation by sections, July, 1911.

Section.	Temperature (°F.).						Precipitation (in inches and hundredths).					
	Section average.	Departure from the normal.	Monthly extremes.				Section average.	Departure from the normal.	Greatest monthly.		Least monthly.	
			Station.	Highest.	Date.	Station.	Lowest.	Date.	Station.	Amount.	Station.	Amount.
Alabama.....	78.0	-2.0	Tuscaloosa.....	102	3	Riverton.....	50	26	Daphne.....	10.49	Auburn.....	2.30
Arizona.....	79.0	-3.1	Parker.....	120	15	Flagstaff (2).....	28	4	Intake.....	8.35	Parker.....	0.22
Arkansas.....	78.4	-1.8	Arkadelphia.....	106	3	Bergman.....	43	25	Pocahontas.....	9.48	Camden.....	2.42
California.....	74.1	+0.5	2 stations.....	117	15†	Tamarack.....	28	1†	Mammoth Tank.....	2.50	Many Stations.....	0.00
Colorado.....	63.9	-1.8	Lamar.....	105	30	3 stations.....	26	9†	Chromo.....	8.35	Holyoke (near).....	0.62
Florida.....	80.5	-0.6	2 stations.....	101	12†	Mount Pleasant.....	56	28	Live Oak.....	12.20	St. Augustine.....	1.22
Georgia.....	78.3	-1.8	Valdosta.....	107	1	Mineral Bluff.....	46	26	Newnan.....	9.77	2 stations.....	2.53
Hawaii (June).....	71.7	-1.0	Molokai ranch.....	91	14	Humuula.....	42	7	Hakalan.....	32.74	3 stations.....	0.00
Idaho.....	67.5	-1.0	2 stations.....	106	16†	Paris.....	24	1	Grace.....	1.03	9 stations.....	0.00
Illinois.....	76.1	+0.6	Mascoutah.....	108	4	Lanark.....	41	26	La Harpe.....	7.17	Sumner.....	0.56
Indiana.....	75.1	-0.1	3 stations.....	106	4	Auburn.....	40	26	Collegeville.....	5.16	Marengo.....	0.46
Iowa.....	75.6	+2.2	3 stations.....	111	3†	Elma.....	38	17	Elkader.....	6.62	Jefferson.....	0.08
Kansas.....	78.6	+0.9	Frankfort.....	114	5	St. Francis.....	42	24	Howard.....	12.81	Leavenworth.....	0.41
Kentucky.....	75.8	-1.0	4 stations.....	105	3†	Farmers.....	42	27	Williamstown.....	6.58	Paintsville.....	0.77
Louisiana.....	80.0	-1.5	2 stations.....	102	3	Calhoun.....	54	27	Cameron.....	15.72	Calhoun.....	3.45
Maryland & Delaware.....	77.0	+1.5	Leonardstown, Md.....	106	3	Deer Park, Md.....	35	1	Frederick, Md.....	6.07	Porto Bello, Md.....	0.04
Michigan.....	70.0	+1.6	Bay City.....	110	2	2 stations.....	34	16†	Iron River.....	9.79	Omer.....	0.20
Minnesota.....	68.2	-0.3	Winona.....	105	2	Stephens mine.....	31	19	Floodwood.....	6.28	Worthington.....	1.39
Mississippi.....	78.6	-2.2	2 stations.....	102	2†	Greenwood.....	51	26	Natchez.....	15.50	Greenwood.....	1.63
Missouri.....	78.0	+1.1	Steffenville.....	113	3	Ironton.....	43	26	Joplin.....	11.82	St. Louis.....	0.64
Montana.....	63.2	-2.3	2 stations.....	103	7	Boulder Nursery.....	22	20	Half Moon Pass.....	3.45	Saint Regis.....	0.00
Nebraska.....	74.1	+0.4	6 stations.....	112	5	2 stations.....	32	9	Beatrice.....	11.56	Loyal.....	0.32
Nevada.....	70.9	0.0	Carlin.....	109	16	2 stations.....	30	8†	Reno.....	1.59	7 stations.....	0.00
New England.....	72.6	+3.2	2 stations.....	106	4	2 stations.....	40	16†	Rockport, Mass.....	10.77	Jacksonville, Vt.....	1.21
New Jersey.....	76.0	+2.2	3 stations.....	104	3†	Charlotteburg.....	42	26	Somerville.....	6.46	Haddonfield.....	2.06
New Mexico.....	70.3	-2.3	Plainview.....	102	30	Red River Canyon.....	32	30	Torrance.....	11.54	Agricultural College.....	1.36
New York.....	71.7	+2.4	Addison.....	106	4	Nehasane.....	36	27	Smartville.....	5.49	Tribeshill.....	0.90
North Carolina.....	76.7	+0.1	Weldon.....	104	11	Banners Elk.....	38	27	Henderson.....	8.11	Ramseur.....	0.66
North Dakota.....	65.1	-1.9	2 stations.....	107	7†	Manfred.....	23	16	McHenry.....	3.70	Haley.....	0.46
Ohio.....	74.0	+0.4	Dayton.....	107	4	Garrettsville.....	41	27	Bellefontaine.....	5.28	Chillicothe.....	0.20
Oklahoma.....	80.7	+0.3	2 stations.....	110	5†	Arapaho.....	44	24	Fairland.....	10.65	Ravia.....	1.68
Oregon.....	68.4	+2.1	Blalock.....	115	16	Williams.....	25	8	Butte Falls.....	0.85	40 stations.....	0.00
Pennsylvania.....	73.7	+1.9	3 stations.....	105	3†	Greenville.....	36	26	Pocono Lake.....	7.41	Skidmore.....	0.90
Porto Rico.....	78.2	-0.6	Canovanas.....	96	30	Jayuya.....	54	27	Alto de la Bandera.....	13.60	Juana Diaz.....	2.33
South Carolina.....	79.8	-0.1	2 stations.....	102	3†	2 stations.....	53	26†	Walterboro.....	7.36	Cheraw.....	0.83
South Dakota.....	71.0	-0.3	Armour.....	109	4	Daviston.....	32	25	Aberdeen.....	5.33	Hermosa.....	0.18
Tennessee.....	76.0	-1.4	Union City.....	107	4	Erasmus.....	41	27	Tullahoma.....	8.44	Pope.....	1.24
Texas.....	82.6	0.0	Ballinger.....	111	23	Tulia.....	50	25	Henderson.....	14.95	2 stations.....	0.00
Utah.....	69.5	-2.3	Springdale.....	106	10†	Woodruff.....	21	8†	Monticello.....	3.95	3 stations.....	0.00
Virginia.....	75.9	+0.7	Lincoln.....	104	2†	Burkes Garden.....	34	27	Catawba.....	6.63	Richmond.....	0.57
Washington.....	67.9	+0.9	Kennewick.....	114	16	Bumping Lake.....	31	22	Clearbrook.....	1.54	17 stations.....	0.00
West Virginia.....	73.3	+0.3	Bens Run.....	106	4	3 stations.....	40	15†	Nuttallburg.....	6.94	Lost City.....	0.40
Wisconsin.....	69.7	+0.7	3 stations.....	106	2†	Prentice.....	33	12	Big St. Germain Dam.....	9.30	Port Washington.....	0.52
Wyoming.....	61.3	-1.8	Fort Laramie.....	99	8	Tower Falls, Y. N. P.....	22	10	Woodrock.....	2.84	Upper Geyser Basin, Y. N. P.....	T.

†Other dates also.

TABLE I.—Climatological data for United States Weather Bureau stations, July, 1911.

Districts and stations.	Elevation of instruments.			Pressure in inches.		Temperature of the air, in degrees Fahrenheit.										Precipitation, inches.			Wind.					Snow on ground at end of month.								
	Barometer above sea level, feet.	Thermometer above ground.	Anemometer above ground.	Station, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean temperature of the air.				Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean wet thermometer.	Mean temperature of dew point.	Mean relative humidity, per cent.	Total.	Departure from normal.	Days with 0.01, or more.	Total movement, miles.	Prevailing direction.		Maximum velocity.							
							Mean max. + 2.	Mean min. - 2.	Mean.	Direction.															Miles per hour.	Direction.	Date.					
New England.																																
Eastport.	76	67	85	29.87	29.96	+ .02	64.0	+ 4.2	85	12	72	52	17	56	30	59	50	80	3.50	+ 0.1	10	5,894	s.	41	e.	28	6	17	8	6.1		
Greenville.	1,070	6		28.82	29.96	+ .01	68.8	.....	93	3	81	46	8	57	38			4.04		12			40	n.	28	13	6	12	5.1		
Portland, Me.	103	81	117	29.84	29.96	+ .01	71.8	+ 3.8	103	4	80	54	26	63	29	64	59	67	4.71	+ 1.5	10	6,132	w.	40	n.	28	13	6	12	5.1		
Concord.	288	70	79	29.67	29.97	+ .01	73.2	+ 4.1	102	4	86	49	27	60	35			3.45	+ 0.3	7	3,582		24	s.	25	8	15	8	5.2			
Burlington.	404	11	48	29.54	29.96	+ .02	72.5	+ 4.3	100	3	84	43	27	61	36			2.47	+ 1.3	12	6,708	s.	34	s.	26	11	15	5	4.9			
Northfield.	876	16	60	29.66	29.98	+ .04	68.0	+ 1.4	98	3	82	43	27	54	41	63	59	74	3.41	+ 0.3	10	4,333	sw.	36	sw.	10	9	14	8	5.2		
Boston.	125	115	188	29.85	29.98	+ .02	77.1	+ 2.8	104	4	86	57	28	68	30	68	63	65	4.65	+ 1.3	4	6,844	w.	34	n.	28	11	10	10	5.6		
Nantucket.	12	14	90	29.99	30.00	+ .02	71.0	+ 3.5	88	10	78	59	1	64	21	67	66	87	3.20	+ 0.5	6	11,032	sw.	46	ne.	28	14	12	5	4.7		
Block Island.	26	11	46	29.97	30.00	+ .03	70.9	+ 2.8	92	11	77	60	26	65	22	68	67	91	2.95	+ 0.4	6	10,757	sw.	46	n.	28	15	8	8	4.8		
Narragansett.	9						70.9	+ 1.0	91	10	79	53	26	63	23			3.63		9						21	6	4				
Providence.	160	141	165	29.83	30.00	+ .03	75.2	+ 1.8	99	10	84	56	26	66	27	68	64	73	3.23	+ 0.3	8	6,678	se.	37	se.	21	13	11	7	4.8		
Hartford.	159	122	140	29.82	29.99	+ .02	75.4	+ 3.8	100	10	86	56	27	65	32	67	62	68	2.97	+ 1.1	10	5,131	s.	39	sw.	24	5	18	8	5.6		
New Haven.	106	116	155	29.88	29.99	+ .02	74.8	+ 2.9	98	3	84	55	26	66	27	67	63	70	2.17	+ 2.6	6	5,580	s.	31	s.	24	16	9	6	4.3		
Middle Atlantic States.																																
Albany.	97	102	115	29.88	29.98	+ .02	75.3	+ 3.3	104	4	86	55	26	64	29	66	61	66	3.16	+ 0.7	11	4,793	s.	30	sw.	10	16	13	2	3.7		
Binghamton.	871	78	88	29.10	30.01	+ .04	72.3	+ 2.4	98	4	84	49	19	60	33			2.66	+ 0.9	10	3,386	w.	27	sw.	24	5	15	11	5.9			
New York.	365	414	454	29.68	30.00	+ .02	76.0	+ 2.5	98	3	84	62	28	68	24	67	63	68	1.55	+ 3.0	8	10,194	sw.	62	nw.	21	9	14	8	5.4		
Harrisburg.	374	94	104	29.63	30.02	+ .04	77.4	+ 2.9	100	3	87	55	26	67	28	66	61	61	1.81	+ 2.1	6	4,064	w.	32	se.	7	7	20	4	5.3		
Philadelphia.	117	123	184	29.90	30.02	+ .04	78.5	+ 2.7	99	3	87	64	27	70	24	69	64	66	4.19	+ 0.1	9	5,762	sw.	24	sw.	24	6	17	8	5.2		
Scranton.	805	111	119	29.18	30.02	+ .04	73.8	+ 2.0	96	4	85	49	26	63	29	66	63	69	2.88	+ 1.0	13	4,225	sw.	36	nw.	6	9	16	6	4.9		
Atlantic City.	52	37	48	29.97	30.02	+ .04	74.6	+ 2.1	96	11	80	62	19	69	21	69	67	80	4.15	+ 0.4	8	5,163	sw.	29	s.	24	14	6	11	4.8		
Cape May.	17	9	56	30.02	30.04	+ .06	75.2	+ 1.8	94	11	82	64	27	69	20	70	68	84	3.44	+ 0.3	6	4,901	sw.	26	se.	24	12	16	3	4.6		
Baltimore.	123	100	113	29.89	30.02	+ .04	79.2	+ 1.9	98	6	88	61	19	70	20	70	66	67	3.53	+ 1.3	6	4,495	s.	27	n.	7	16	11	4	3.9		
Washington.	112	62	85	29.90	30.01	+ .01	78.7	+ 1.9	99	3	90	56	19	68	31	69	65	66	4.47	+ 0.2	7	3,817	s.	48	nw.	21	14	13	4	4.1		
Cape Henry.	18	9	58																													
Lynchburg.	681	83	88	29.31	30.04	+ .03	77.4	+ 0.1	97	3	88	56	26	66	30	68	64	69	5.53	+ 1.5	7	2,587	n.	34	nw.	11	14	17	0	4.3		
Mount Weather.	1,725	10	54	28.25	30.01	+ .02	73.4	+ 2.0	91	3	81	57	18	65	22	64	59	64	1.25	+ 3.4	7	8,536	w.	54	w.	25	11	17	3	5.0		
Norfolk.	91	102	111	29.95	30.04	+ .04	79.2	+ 0.8	97	11	87	64	26	71	24	71	68	74	5.10	+ 0.7	12	5,960	s.	36	nw.	11	13	15	3	4.3		
Richmond.	144	189	197	29.90	30.04	+ .03	79.6	+ 0.4	100	7	91	60	28	68	30			0.57	+ 3.8	3	5,047	sw.	34	sw.	24	7	19	5	5.1			
Wytheville.	2,293	40	47	27.74	30.05	+ .04	70.0	+ 2.6	93	3	82	45	27	58	37	63	59	73	1.69	+ 2.8	11	2,740	w.	23	w.	24	17	14	0	3.3		
South Atlantic States.																																
Asheville.	2,255	53	75	27.78	30.07	+ .05	71.2	+ 0.5	89	3	82	48	27	61	31	64	61	77	2.49	+ 2.4	9	4,118	nw.	37	e.	3	7	16	8	5.4		
Charlotte.	773	68	76	29.24	30.06	+ .04	78.8	+ 0.1	95	3	89	62	26	69	26	69	65	70	2.86	+ 2.6	11	4,072	sw.	28	sw.	24	8	18	5	5.3		
Hatteras.	11	12	47	30.05	30.06	+ .05	79.0	+ 0.4	88	11	85	67	1	73	16	74	72	81	1.03	+ 5.1	8	8,014	sw.	36	sw.	24	20	8	3	3.7		
Manteo.	12	12	46				78.9	.....	97	11	88	59	1	70				1.92	+ 4.2	8						17	10	4			
Raleigh.	376	103	110	29.65	30.04	+ .02	78.8	+ 0.3	98	11	89	62	28	69	27	70	66	71	2.95	+ 3.2	9	5,067	sw.	29	se.	31	9	16	6	5.2		
Wilmington.	78	81	91	29.98	30.06	+ .05	79.8	+ 1.1	93	11	87	65	28	72	21	73	70	78	3.64	+ 3.3	5	5,068	w.	27	sw.	24	6	24	1	4.9		
Charleston.	48	11	92	30.02	30.07	+ .04	80.6	+ 0.5	94	21	87	65	26	74	21	74	72	77	2.23	+ 5.0	11	6,435	se.	32	w.	17	7	20	4	5.4		
Columbia, S. C.	351	41	57	29.68	30.06	+ .04	79.8	+ 1.3	95	23	90	60	26	70	28	70	66	70	2.30	+ 3.8	14	4,227	sw.	36	sw.	23	2	14	15	6.9		
Augusta.	180	89	97	29.87	30.06	+ .04	79.7	+ 0.8	92	3	89	62	26	71	26	71	68	75	5.27	+ 0.0	13	3,815	sw.	27	nw.	21	3	18	10	6.5		
Savannah.	65	150	194	30.00	30.07	+ .04	79.3	+ 1.2	94	11	87	65	26	71	22	73	71	80	3.89	+ 2.3	12	6,892	sw.	36	sw.	18	2	20	9	6.2		
Jacksonville.	43	96	129	30.04	30.09	+ .06	81.0	+ 0.1	94	1	89	68	28	73	20	74	71	79	2.35	+ 3.8	14	5,799	sw.	35	s.	18	5	18	8	5.8		
Florida peninsula.																																
Key West.	22	10	53	30.04	30.06	+ .03	82.2	+ 1.5	90	26	88	72	3	77	16	76	73	75	3.04	+ 0.6	13	5,026	e.	38	ne.	6	9	15	7	5.3		
Miami.	25	37	72	30.06	30.08	+ .02	81.7	.....	92	1	89	71	5	75	20	75	72	75	4.08	+ 3.2	15		se.			6	9	16	6.3		
Tampa.	35	79	96	30.05	30.08	+ .04	81.1	+ 1.1	92	6	89	68	5	73	22	74	73	83	6.46	+ 2.0	15	4,167	ne.	33	e.	4	9	14	8	5.6		
East Gulf States.																																
Atlanta.	1,174	190	216	28.86	30.08	+ .06	76.3	+ 1.3	96	1	85																					

TABLE I.—Climatological data for United States Weather Bureau stations, July, 1911—Continued.

Districts and stations.	Elevation of instruments.			Pressure in inches.		Temperature of the air, in degrees Fahrenheit.										Precipitation, inches.		Wind.					Average cloudiness, tenths.	Snow on ground at end of month.								
	Barometer above sea level, feet.	Thermometer above ground.	Anemometer above ground.	Station, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean max. + min. - 2.	Departure from normal.	Maximum.	Date.	Mean minimum.	Minimum.	Date.	Mean maximum.	Mean minimum.	Mean range.	Mean wet thermometer.	Mean temperature of dew point.	Mean relative humidity, per cent.	Total.	Departure from normal.	Days with .01, or more.			Total movement, miles.	Prevailing direction.	Miles per hour.	Direction.	Date.	Clear days.	Partly cloudy days.	Cloudy days.
Ohio Valley and Tennessee—Continued.																																
Indianapolis.....	822	154	164	29.16	30.04	+.05	76.0	- 0.2	103	4 86	51	25	66	25	65	58	59	58	59	2.35	- 1.8	7	5,845	s.	46	w.	10	8	18	5	4.9	
Cincinnati.....	628	152	160	29.38	30.05	+.05	76.9	- 0.8	102	4 87	54	26	66	28	66	60	60	60	60	4.61	+ 1.1	9	3,880	w.	27	w.	24	10	15	6	4.7	
Columbus.....	824	173	222	29.18	30.04	+.04	75.7	+ 0.4	104	4 87	52	25	65	27	64	58	60	60	60	3.29	+ 0.4	11	6,135	n.	63	w.	24	16	11	4	3.9	
Pittsburgh.....	842	353	410	29.14	30.02	+.02	77.0	+ 2.4	100	4 86	54	25	68	29	65	58	60	60	60	2.17	- 2.2	7	6,340	nw.	42	nw.	21	12	16	3	4.3	
Parkersburg.....	638	77	84	29.41	30.06	+.05	76.6	+ 1.0	102	3 88	54	27	65	31	67	63	69	70	70	1.63	- 3.0	6	3,510	sw.	34	nw.	24	14	13	4	4.4	
Elkins.....	1,940	41	50	28.07	30.06	+.05	70.6	+ 0.1	93	5 84	47	27	57	38	63	60	60	60	60	3.67	- 1.0	10	1,997	w.	14	se.	7	8	21	2	5.0	
Lower Lake Region.																																
Buffalo.....	767	178	206	29.18	29.99	+.02	71.6	+ 1.4	95	5 78	56	26	65	24	65	60	60	60	60	4.41	+ 1.0	8	9,769	sw.	72	w.	24	14	13	4	3.7	
Canton.....	448	10	71	29.50	29.97	+.02	70.8	+ 0.3	98	5 82	50	27	60	34	64	60	60	60	60	4.88	+ 1.6	10	7,494	sw.	48	w.	24	12	14	5	4.6	
Oswego.....	335	76	91	29.62	29.98	+.02	71.2	+ 1.6	97	5 80	53	26	63	29	64	60	60	60	60	4.06	+ 0.8	7	5,606	w.	43	n.	11	12	15	4	3.3	
Rochester.....	523	86	102	29.45	30.00	+.03	73.1	+ 2.7	101	5 83	52	27	63	30	63	58	63	63	63	4.35	+ 1.3	9	5,842	sw.	42	w.	24	13	14	4	4.0	
Syracuse.....	597	97	113	29.37	30.01	+.04	72.8	+ 2.0	100	5 83	52	27	63	29	63	58	63	63	63	3.06	- 0.6	11	6,799	s.	43	nw.	10	16	13	2	4.2	
Erie.....	714	92	102	29.25	30.00	+.02	72.8	+ 1.0	96	5 80	53	27	65	21	64	58	60	60	60	2.14	- 1.1	8	6,386	s.	41	w.	24	13	11	7	5.8	
Cleveland.....	762	190	201	29.21	30.02	+.03	72.8	+ 0.3	96	5 80	55	26	65	23	65	60	65	65	65	1.71	- 1.8	7	8,072	s.	52	w.	24	15	11	5	5.8	
Sandusky.....	629	62	70	29.35	30.02	+.03	74.4	+ 0.8	98	3 84	53	26	65	29	64	59	62	62	62	2.09	- 1.7	8	5,025	sw.	44	w.	11	15	11	5	5.8	
Toledo.....	628	208	246	29.35	30.02	+.03	74.6	+ 0.9	100	3 85	52	26	65	24	64	59	62	62	62	1.25	- 2.0	9	9,648	sw.	60	sw.	24	20	9	5	5.8	
Detroit.....	730	218	258	29.23	30.00	+.02	73.6	+ 1.6	100	3 83	52	26	64	25	63	57	59	59	59	0.79	- 2.7	9	9,476	sw.	51	w.	24	15	11	5	6.0	
Upper Lake Region.																																
Alpena.....	609	13	92	29.30	29.97	+.00	67.4	+ 1.6	101	2 78	46	17	57	34	61	57	57	57	57	1.20	- 1.9	11	7,887	se.	46	se.	23	8	20	4	4.8	
Escanaba.....	612	48	82	29.28	29.94	+.03	65.5	- 1.0	88	2 74	46	17	57	27	60	57	75	75	75	6.63	+ 3.3	16	6,807	s.	34	nw.	24	12	12	4	4.6	
Grand Haven.....	632	54	92	29.31	29.97	+.01	71.6	+ 1.9	94	4 80	51	17	64	26	64	59	65	65	65	0.88	- 1.7	7	8,371	s.	51	w.	24	25	4	2	4.4	
Grand Rapids.....	675	70	87	29.24	29.99	+.01	73.7	+ 1.1	100	4 84	51	26	63	28	64	58	61	61	61	1.27	- 1.4	5	4,382	w.	31	w.	24	17	11	6	3.6	
Lansing.....	863	11	62	29.06	29.98	+.00	71.3	.....	99	5 84	44	26	59	32	63	58	64	64	64	1.65	.....	8	3,882	sw.	28	nw.	24	19	7	3	3.2
Houghton.....	668	66	74	29.19	29.90	+.06	65.8	+ 0.5	98	1 75	46	23	57	37	61	57	61	61	61	6.17	+ 3.1	11	6,984	w.	44	w.	11	12	10	5	5.1	
Marquette.....	734	77	116	29.14	29.93	+.03	66.3	+ 1.4	104	2 76	46	24	57	31	59	55	68	68	68	6.76	+ 3.7	16	8,685	s.	54	nw.	24	6	16	5	5.9	
Port Huron.....	638	78	120	29.31	29.99	+.01	71.5	+ 2.5	101	3 82	49	26	61	31	63	58	65	65	65	1.61	- 1.1	10	7,112	sw.	40	w.	24	13	9	5	5.1	
Sault Ste. Marie.....	614	11	61	29.26	29.95	+.02	63.7	+ 1.8	97	2 74	39	17	53	35	59	56	78	78	78	3.31	+ 0.6	15	6,074	w.	48	nw.	11	12	10	5	5.2	
Chicago.....	823	140	310	29.33	29.99	+.01	76.0	+ 3.6	102	5 84	53	25	68	24	65	60	65	65	65	2.65	- 1.0	9	8,805	sw.	48	w.	24	15	13	3	3.8	
Milwaukee.....	681	122	138	29.25	29.98	+.01	72.6	+ 2.9	99	3 81	54	26	64	30	62	57	61	61	61	0.62	- 2.4	8	7,541	w.	30	se.	27	19	9	3	3.3	
Green Bay.....	617	49	86	29.29	29.94	+.03	70.4	+ 0.9	97	2 81	48	25	60	30	62	57	66	66	66	1.59	- 1.9	14	8,642	s.	56	nw.	15	7	18	6	5.6	
Duluth.....	1,133	11	47	28.72	29.92	+.03	64.6	- 1.4	92	1 75	45	16	54	32	58	53	69	69	69	5.83	+ 2.2	14	9,633	w.	46	sw.	20	5	22	4	5.6	
North Dakota.																																
Moorhead.....	940	8	57	28.94	29.94	+.00	67.8	- 0.9	100	8 81	43	16	54	39	60	55	68	68	68	2.38	- 1.4	13	5,990	nw.	29	s.	8	18	4	4	3.5	
Bismarck.....	1,674	4	57	28.22	29.98	+.05	67.0	- 3.2	99	7 82	42	25	52	42	57	49	55	55	55	1.13	- 1.0	5	8,237	nw.	47	w.	7	17	6	6	3.6	
Devils Lake.....	1,482	11	44	28.38	29.94	+.01	64.2	- 3.9	89	8 77	39	17	51	35	56	50	65	65	65	2.04	- 1.7	11	8,811	w.	44	w.	10	15	1	4	4.4	
Williston.....	1,872	14	56	28.00	29.95	+.03	64.8	- 4.6	98	7 78	41	19	51	45	54	45	54	54	54	1.21	- 0.8	9	7,290	n.	47	nw.	7	17	1	3	3.5	
Upper Mississippi Valley.																																
Minneapolis.....	918	102	208	29.04	29.93	+.02	71.1	- 1.5	99	1 82	50	24	61	29	60	54	61	61	61	4.62	+ 0.8	16	9,156	w.	48	nw.	23	12	3	6	4.6	
St. Paul.....	940	203	212	29.04	29.93	+.02	70.6	- 1.5	99	2 82	46	24	60	32	60	54	61	61	61	5.15	+ 1.8	17	8,224	nw.	54	n.	4	12	6	3	4.1	
La Crosse.....	714	11	48	29.21	29.96	+.00	72.8	+ 0.2	103	2 85	45	17	60	30	62	56	61	61	61	2.58	- 1.5	11	4,061	s.	26	s.	10	13	8	10	4.8	
Madison.....	974	70	78	28.96	29.98	+.01	72.6	+ 0.2	98	4 82	52	25	63	30	62	56	61	61	61	1.69	- 2.3	9	5,639	sw.	28	sw.	15	15	11	5	4.0	
Charles City.....	1,015	10	49	28.91	29.96	+.00	73.0	+ 0.5	104	4 87	44	17	59	39	63	54	59	59	59	3.03	- 0.6	9	5,474	nw.	36	nw.	23	12	11	8	4.8	
Davenport.....	606	71	79	29.33	29.98	+.01	76.7	+ 1.3	104	5 87	51	26	64	30	64	57	59	59	59	5.12	+ 1.6	11	5,241	s.	33	nw.	24	16	13	2	3.3	
Des Moines.....	861	84	101	29.04	29.94	+.02	72.2	+ 1.7	105	5 89	49	17	64	35	64	54	52	52	52	1.16	- 2.7	9	5,448	s.	34	sw.	27	11	15	5	4.9	
Dubuque.....	698	100	115	29.25	29.99	+.02	74.8	+ 1.0	104	5 86	49	24	64	35	64	57	59	59	59	4.41	+ 0.1	10	4,586	s.	30	nw.	5	16	16	5	4.7	
Keokuk.....	614	64	78	29.34	30.00	+.02	78.2	+ 1.2	104	5 89	52	26	68	27	67	62	62	62	62	6.48	+ 2.4	7	5,249	s.	31	sw.	15	15	13	3	3.5	
Calro.....	350	87	93	29.06	30.03	+.03	78.4	- 0.2	99	4 87	59	25	70	24	68	63	65	65	65	1.99	- 1.5	8	4,883	sw.	28	n.	16	9	14	8	5.2	
La Salle.....	536	56	64	29.46	30.02	+.03	75.4	+ 0.1	101	3 86	50	24	64	33	64	56	62	62	62	3.16	- 0.1	9	4,778	sw.	31	nw.	24	17	11	3	3.5	
Peoria.....	6090																															

TABLE I.—Climatological data for United States Weather Bureau stations, July, 1911—Continued.

Districts and stations.	Elevation of instruments.			Pressure in inches.		Temperature of the air, in degrees Fahrenheit.										Precipitation, inches.			Wind.					Average cloudiness, tenths.	Total snowfall.	Snow on ground at end of month.					
	Barometer above sea level, feet.	Thermometer above ground.	Anemometer above ground.	Station, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean max. + mean min. + 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean wet thermometer.	Mean temperature of dew point.	Mean relative humidity, per cent.	Total.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.				Maximum velocity.	Miles per hour.	Direction.	Date.	Clear days.
Middle Slope.																															
Denver	5,291	129	136	24.83	29.99	+.08	69.6	- 2.2	91	10	82	50	24	57	34	56	48	54	1.31	- 0.3	9	5,885	sw.	45	n.	18	9	17	5	5.1	
Pueblo	4,685	80	86	25.37	29.97	+.06	72.6	- 1.6	93	22	84	54	25	61	36	59	53	61	2.81	+ 0.8	13	4,797	se.	40	nw.	18	5	17	9	5.9	
Concordia	1,398	42	50	28.52	29.96	+.01	78.9	+ 0.8	107	5	90	51	25	67	34	67	61	60	2.77	- 0.8	12	4,998	s.	26	n.	17	4	24	3	5.5	
Dodge City	2,509	11	51	27.43	29.97	+.04	76.8	- 0.9	102	5	88	54	25	66	32	67	61	65	7.29	+ 3.9	10	7,744	s.	40	ne.	17	10	15	6	5.0	
Wichita	1,364	139	158	28.50	29.99	+.03	78.1	- 0.9	101	4	87	58	24	69	28	67	62	65	5.95	+ 2.3	11	8,115	s.	38	s.	8	11	15	5	4.5	
Oklahoma	1,214	10	47	28.72	29.96	+.00	79.5	- 0.3	103	5	89	58	25	70	29	69	65	66	3.74	+ 0.1	12	9,137	s.	44	w.	19	10	17	4	4.7	
Southern Slope.																															
Abilene	1,738	10	52	28.19	29.94	+.01	82.8	+ 0.6	107	23	94	54	31	72	44	69	62	58	6.39	+ 4.0	9	7,710	s.	60	se.	31	3	18	10	6.4	
Amarillo	3,676	10	49	26.32	29.97	+.05	75.4	- 0.7	96	5	86	54	25	64	29	63	61	70	3.85	+ 0.7	18	7,160	se.	33	e.	8	7	19	5	5.1	
Del Rio	944	8	57	28.96	29.91	+.01	86.3	+ 1.6	105	22	97	67	26	75	27	.....	.....	.....	0.54	- 1.7	5	7,143	se.	32	se.	2	17	12	2	3.8
Roswell	3,578	9	57	.....	.....	.....	77.5	- 1.4	98	23	90	58	25	65	35	.....	.....	.....	2.93	- 0.5	12	3,666	s.	31	nw.	24	11	16	4	.....
Southern plateau.																															
El Paso	3,762	110	133	26.20	29.86	+.02	77.4	- 3.1	97	31	88	60	25	67	29	65	59	58	3.43	+ 1.3	15	7,833	e.	50	w.	21	6	21	4	5.0	
Santa Fe	7,013	8	56	23.39	29.94	+.06	64.6	- 4.1	81	31	74	51	25	55	27	56	51	69	5.50	+ 2.8	19	5,134	ne.	35	e.	5	7	17	7	5.5	
Flagstaff	6,907	8	57	23.47	29.91	+.08	62.6	- 2.4	84	9	75	44	5	50	37	53	48	73	5.53	+ 3.7	19	3,868	nw.	25	nw.	27	6	11	14	6.4	
Phoenix	1,108	50	56	28.69	29.80	+.02	86.0	- 4.4	109	31	98	65	2	74	36	71	63	53	6.47	+ 5.4	9	2,168	e.	27	sw.	21	9	19	3	4.8	
Yuma	141	9	58	29.65	29.78	+.02	90.2	- 0.7	115	31	105	69	4	76	41	73	66	51	0.42	+ 0.3	3	4,455	sw.	36	n.	15	25	4	2	1.8	
Independence	3,910	11	42	25.99	29.89	+.06	77.6	- 0.9	96	16	93	56	28	63	37	58	43	33	0.10	0.0	1	4,494	nw.	20	n.	23	22	9	0	2.2	
Middle plateau.																															
Reno	4,532	56	63	25.53	29.94	+.07	71.4	+ 3.9	95	14	89	42	1	54	44	54	44	49	1.59	+ 1.4	5	4,665	w.	37	nw.	18	22	6	3	2.3	
Tonopah	6,090	12	20	24.14	29.93	.....	73.2	.....	93	15	85	49	1	61	31	53	38	33	0.99	+ 0.7	7	5,245	w.	37	nw.	18	8	22	1	4.3
Winnemucca	4,344	18	56	25.66	29.97	+.07	71.6	- 0.0	99	17	90	41	1	53	45	52	38	39	0.12	0.0	3	3,738	sw.	28	s.	24	22	7	2	2.2	
Modena	5,479	10	43	24.68	29.91	+.05	70.2	+ 0.5	93	15	85	46	2	55	43	53	40	44	1.84	+ 0.6	10	6,959	w.	47	nw.	26	7	14	10	5.9	
Salt Lake City	4,360	147	189	25.65	29.93	+.03	74.2	- 2.0	93	14	86	46	1	63	29	56	42	36	0.02	- 0.5	2	5,408	nw.	36	nw.	29	19	11	1	3.3	
Durango	6,546	18	56	23.78	29.96	+.07	64.7	- 4.0	87	10	77	46	31	53	37	55	51	72	5.21	+ 3.7	20	3,391	nw.	22	n.	11	9	17	5	5.5	
Grand Junction	4,608	43	51	25.42	29.95	+.06	74.8	- 4.4	96	10	87	54	9	63	36	58	48	47	0.84	+ 0.3	7	3,916	se.	29	se.	1	10	14	7	4.9	
Northern plateau.																															
Baker	3,466	48	53	26.50	30.02	+.07	66.8	+ 1.8	96	16	83	37	8	50	43	51	38	40	0.01	- 0.4	1	4,674	nw.	25	sw.	19	20	11	0	2.2	
Boise	2,739	78	86	27.16	29.92	+.01	73.6	+ 0.8	99	17	88	48	9	59	41	55	40	35	0.05	- 0.1	2	3,402	nw.	27	n.	7	20	11	0	2.2	
Lewiston	757	10	51	29.17	29.97	+.02	75.2	+ 1.6	106	16	91	50	11	59	43	.....	.....	.....	0.04	- 0.4	3	4,846	e.	48	w.	6	25	6	0	1.8
Pocatello	4,477	46	54	25.53	29.96	+.04	69.6	- 1.6	93	14	85	41	1	54	40	52	38	39	0.47	- 0.2	5	5,748	se.	36	sw.	6	20	11	0	2.5	
Spokane	1,929	101	110	27.96	29.97	+.01	70.7	+ 1.9	98	16	84	48	1	57	41	54	40	39	0.25	- 0.4	4	4,715	nw.	26	sw.	6	16	9	6	3.6	
Walla Walla	1,000	71	79	28.91	29.96	+.01	77.1	+ 3.0	108	16	91	50	8	63	39	56	36	28	T.	- 0.4	0	5,083	sw.	26	sw.	29	24	6	1	1.9	
North Pacific coast region.																															
North Head	211	11	56	29.80	30.11	+.03	56.3	- 1.4	87	23	60	48	12	53	33	54	52	86	0.46	- 0.1	7	10,128	nw.	42	nw.	10	6	10	15	6.6	
Port Crescent	229	8	53	29.84	30.12	+.06	55.9	- 0.4	88	16	65	38	11	46	37	.....	.....	.....	0.18	- 0.4	5	3,691	w.	18	s.	14	12	14	5	4.3
Seattle	125	185	224	29.95	30.08	+.04	65.0	+ 1.5	92	16	75	50	8	55	32	56	50	64	0.18	- 0.5	4	5,048	n.	34	sw.	6	14	9	8	4.5	
Tacoma	213	113	120	29.85	30.08	+.02	64.2	+ 0.8	92	24	74	48	11	54	34	.....	.....	.....	0.06	- 0.6	2	4,213	n.	19	n.	12	14	7	10	5.0
Tatoosh Island	86	7	57	29.99	30.09	+.04	55.1	- 0.0	73	14	60	44	28	50	23	52	50	88	0.44	- 1.3	4	8,015	s.	39	ne.	14	12	6	13	5.2	
Portland, Oreg.	153	68	106	29.88	30.04	+.01	69.5	+ 3.2	99	24	81	47	9	58	36	60	55	65	0.01	- 0.5	1	4,605	nw.	21	nw.	11	16	10	5	4.0	
Roseburg	510	9	57	29.48	30.02	+.01	70.6	+ 4.5	105	16	88	43	8	53	50	58	50	57	0.03	- 0.3	1	2,785	n.	18	n.	10	22	9	0	1.7	
Middle Pacific coast region.																															
Eureka	80	73	89	30.00	30.07	+.02	53.8	- 1.5	64	25	58	46	8	50	12	51	50	90	T.	0.1	0	5,027	n.	29	n.	8	3	15	13	7.1	
Mount Tamalpais	2,375	11	18	27.54	29.96	+.01	72.2	.....	94	16	80	52	20	65	23	55	41	34	0.02	0.0	1	9,830	nw.	56	nw.	17	28	3	0	0.8
Point Reyes Light	490	7	18	29.43	29.95	.....	52.2	.....	62	12	55	47	3	49	11	.....	.....	.....	T.	.....	0	015,113	nw.	54	nw.	7	3	4	24	8.4
Red Bluff	332	50	56	29.52	29.86	+.03	53.8	+ 1.7	112	15	99	50	20	69	37	62	46	32	0.00	0.0	0	3,664	se.	26	nw.	8	29	1	1	1.0	
Sacramento	69	106	117	29.82	29.89	+.01	73.0	+ 0.5	100	26	89	51	19	57	41	62	56	60	0.00	0.0	0	5,908	s.	18	s.	10	29	2	0	0.7	
San Francisco	155	200	204	29.80	29.98	+.03	56.4	- 0.9	84	1	62	49	3	51	30	52	50	86	T.	0.0	0	9,317	w.	34	sw.	31	11	16	4	4.5	
San Jose	141	12	110	29.81	29.96	.....	65.8	- 1.1	91	1	79	46	22	53	43	.....	.....	.....	0.00	0.0	0	4,375	nw.	18	se.	2	29	2	0	2.3
Southeast Farallon	30	9	17	29.98	30.00	.....	53.0	.....	60	12	55	48	6	51	7	.....	.....	.....	0.00	0.0	0	9,985	nw.	48	nw.	7	4	8	19	6.9
South Pacific coast region.																															
Fresno	330	67	70	29.52	29.86	+.03	84.0	+ 2.0	111	16	101	58	21	67	41	61	44	32	T.	0.0	0	4,701	w.	21	w.	31	26	4	1	1.7	
Los Angeles	338	159	191	29.56	29.92	+.02	69.4	+ 2.0	93	15	79	55	28	60	30	61	67	75	T.	0.0	0	4,001	sw.	22	se.	14	13	15	3	3.9	
San Diego	87	94	102	29.84	29.93	+.01	66.2	- 0.7	93	14	71	59	10	61	30	62	60	85	0.12	+ 0.1	4	4,620	nw.	26	nw.	14	15	12	4	4.4	
San Luis Obispo	201	47	54	20.77	29.99	+.04	63.2	0.0	90	1	75	48	22	52	41	55	51	72	T.	0.0	0	3,254	nw.	16	nw.	14	15	14	2	4.2	
West Indies.																															
Grand Turk	11	6	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, for storms in which the rate of fall equaled or exceeded 0.25 in any 5 minutes, or 0.80 inch in 1 hour, during July, 1911, at all stations furnished with self-registering gages.

Stations.	Date.	Total duration.		Total amount of precipitation.	Excessive rate.		Amount before excessive rate began.	Depths of precipitation (in inches) during periods of time indicated.													
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Abilene, Tex.	14	12.50 p.m.	2.10 p.m.	1.20	12.52 p.m.	1.49 p.m.	0.01	0.09	0.17	0.28	0.40	0.47	0.54	0.60	0.75	0.98	1.08	1.18			
	17	1.47 p.m.	2.20 p.m.	0.55	1.50 p.m.	2.10 p.m.	0.01	0.13	0.33	0.43	0.52										
	31	6.00 p.m.	8.10 p.m.	3.75	6.06 p.m.	7.16 p.m.	0.02	0.24	0.70	1.03	1.36	1.69	2.02	2.32	2.76	3.01	3.14	3.46	3.62		
Albany, N. Y.	17	11.55 a.m.	3.35 p.m.	1.04	12.15 p.m.	12.48 p.m.	0.01	0.29	0.42	0.49	0.54	0.59	0.65	0.68							
Alpena, Mich.	14			0.27														0.26			
Amarillo, Tex.	17			0.50														0.49			
Anniston, Ala.	4	2.00 p.m.	2.45 p.m.	0.65	2.11 p.m.	2.23 p.m.	0.04	0.26	0.56	0.61											
Asheville, N. C.	31	2.35 p.m.	3.10 p.m.	0.70	2.35 p.m.	2.47 p.m.	0.00	0.15	0.63	0.99											
	13			0.54														0.52			
	4	2.20 p.m.	4.50 p.m.	0.61	2.23 p.m.	2.54 p.m.	0.01	0.05	0.14	0.24	0.35	0.43	0.52								
Atlanta, Ga.	13	2.05 p.m.	6.00 p.m.	1.45	2.31 p.m.	3.06 p.m.	0.01	0.11	0.49	0.79	1.03	1.15	1.23	1.27							
	16	7.10 p.m.	D. N. p.m.	1.17	8.24 p.m.	8.54 p.m.	0.21	0.14	0.19	0.23	0.36	0.51	0.58								
	12	9.58 a.m.	10.36 a.m.	0.36	10.00 a.m.	10.10 a.m.	0.01	0.18	0.33												
	17	12.29 p.m.	2.43 p.m.	0.72	1.36 p.m.	2.03 p.m.	0.14	0.15	0.32	0.38	0.41	0.46	0.50								
Atlantic City, N. J.	20	4.08 p.m.	4.25 p.m.	0.34	4.09 p.m.	4.19 p.m.	0.01	0.14	0.31												
	21	12.36 p.m.	5.35 p.m.	1.40	1.02 p.m.	1.41 p.m.	0.02	0.05	0.09	0.17	0.37	0.56	0.61	0.66	0.75						
	24	4.50 p.m.	5.18 p.m.	0.47	4.54 p.m.	5.13 p.m.	0.01	0.09	0.18	0.37	0.45										
Augusta, Ga.	9	4.30 p.m.	5.45 p.m.	0.64	4.48 p.m.	5.01 p.m.	0.01	0.26	0.53	0.61											
Baltimore, Md.	18	4.05 p.m.	6.20 p.m.	2.38	4.05 p.m.	4.38 p.m.	0.00	0.18	0.59	1.03	1.37	1.73	2.14	2.29							
	12	6.10 a.m.	9.10 a.m.	2.06	6.21 a.m.	7.16 a.m.	0.01	0.11	0.30	0.46	0.62	0.75	0.92	1.04	1.53	1.77	1.88	1.95			
	13	2.10 p.m.	5.40 p.m.	1.03	3.47 p.m.	4.52 p.m.	0.01	0.08	0.17	0.23	0.29	0.34	0.36	0.39	0.39	0.40	0.45	0.87			
Bentonville, Ark.	19-20	6.25 p.m.	2.45 a.m.	2.20	10.55 p.m.	11.58 p.m.	0.45	0.10	0.13	0.15	0.19	0.24	0.28	0.39	0.39	0.73	1.08	1.29			
	31	7.10 a.m.	3.15 p.m.	0.98	12.30 p.m.	12.51 p.m.	0.35	0.26	0.51	0.56	0.56	0.57									
Binghamton, N. Y.	6	3.50 p.m.	6.30 p.m.	1.00	4.23 p.m.	4.42 p.m.	0.10	0.14	0.33	0.72	0.79										
	12	12.40 p.m.	2.00 p.m.	1.28	12.43 p.m.	1.24 p.m.	0.01	0.07	0.14	0.20	0.50	0.79	1.02	1.12	1.21	1.23					
Birmingham, Ala.	16	5.05 p.m.	6.45 p.m.	0.84	5.20 p.m.	5.40 p.m.	0.03	0.41	0.66	0.73	0.78										
	22	8.05 p.m.	10.05 p.m.	0.57	8.20 p.m.	8.34 p.m.	0.01	0.28	0.46	0.50											
	24	D. N. a.m.	2.00 p.m.	1.54	4.46 a.m.	5.15 a.m.	0.01	0.11	0.25	0.39	0.54	0.71	0.75								
	24	2.26 p.m.	4.15 p.m.	0.84	2.37 p.m.	2.51 p.m.	0.02	0.32	0.47	0.51											
Bismarck, N. Dak.	31			0.75														0.30			
Block Island, R. I.	24	7.04 a.m.	12.10 p.m.	0.86	8.19 a.m.	8.32 a.m.	0.24	0.23	0.46												
Boise, Idaho.	28	1.45 a.m.	1.48 p.m.	1.63	12.25 p.m.	12.45 p.m.	1.29	0.10	0.17	0.23	0.28										
Boston, Mass.	20			0.04														0.04			
	28	2.45 a.m.	6.30 p.m.	3.49	12.03 p.m.	1.53 p.m.	1.64	0.10	0.25	0.39	0.50	0.58	0.61	0.68	0.74	0.74	0.90	0.95	0.99	1.10	1.33
Buffalo, N. Y.	19-20	11.45 p.m.	4.00 a.m.	2.51	2.44 a.m.	3.44 a.m.	0.19	0.11	0.42	0.81	0.95	1.11	1.26	1.39	1.68	1.79	1.90	2.22			
Burlington, Vt.	6	11.00 a.m.	11.20 a.m.	0.65	11.02 a.m.	11.16 a.m.	0.01	0.20	0.50	0.64											
Cairo, Ill.	20			0.93														0.39			
Canton, N. Y.	6	8.53 a.m.	9.45 a.m.	0.75	8.55 a.m.	9.07 a.m.	0.01	0.33	0.63												
	27-28	5.25 p.m.	6.23 p.m.	1.20	5.46 p.m.	6.09 p.m.	0.09	0.20	0.44	0.77	0.97	1.08									
Charles City, Iowa	17	7.52 p.m.	4.45 a.m.	1.44	4.14 a.m.	4.31 a.m.	0.76	0.15	0.22	0.49	0.55										
Charleston, S. C.	18-19	12.19 p.m.	12.50 p.m.	0.44	12.21 p.m.	12.30 p.m.	0.01	0.32	0.43												
Charlotte, N. C.	12	9.20 p.m.	D. N. a.m.	0.47	9.44 p.m.	9.54 p.m.	0.15	0.22	0.31												
Chattanooga, Tenn.	11	1.09 p.m.	2.14 p.m.	0.76	1.09 p.m.	1.34 p.m.	0.00	0.26	0.45	0.51	0.59	0.66									
Cheyenne, Wyo.	13	6.26 p.m.	8.18 p.m.	1.03	6.35 p.m.	7.05 p.m.	0.02	0.19	0.44	0.67	0.79	0.84	0.9					0.32			
Chicago, Ill.	15	6.54 p.m.	7.20 p.m.	0.37	6.57 p.m.	7.09 p.m.	0.01	0.06	0.26	0.36											
	6	1.30 p.m.	3.10 p.m.	1.43	1.31 p.m.	2.17 p.m.	0.01	0.10	0.28	0.41	0.51	0.71	0.88	1.10	1.31	1.39					
Cincinnati, Ohio.	7	1.52 p.m.	3.45 p.m.	1.14	2.03 p.m.	2.49 p.m.	0.03	0.19	0.30	0.53	0.72	0.87	0.93	0.95	0.97	1.03					
	8	2.54 p.m.	7.05 p.m.	0.98	2.54 p.m.	3.31 p.m.	0.00	0.17	0.31	0.44	0.50	0.54	0.63	0.69							
Cleveland, Ohio.	17	1.30 a.m.	7.46 a.m.	0.62	6.10 a.m.	6.27 a.m.	0.01	0.30	0.30	0.34	0.45										
	9	3.45 p.m.	7.04 p.m.	1.29	3.55 p.m.	4.55 p.m.	0.01	0.11	0.35	0.53	0.58	0.62	0.70	0.80	0.89	0.98	1.19				
Columbia, Mo.	31	11.40 a.m.	3.12 p.m.	0.68	11.40 a.m.	11.50 a.m.	0.00	0.25	0.35												
Columbia, S. C.	23	5.30 p.m.	7.00 p.m.	0.72	6.14 p.m.	6.42 p.m.	0.13	0.10	0.19	0.24	0.36	0.50	0.57								
Columbus, Ohio.	8	5.08 p.m.	5.55 p.m.	1.46	5.11 p.m.	5.35 p.m.	0.01	0.30	0.68	1.05	1.30	1.41									
	16	12.35 p.m.	1.19 p.m.	0.43	12.58 p.m.	1.13 p.m.	0.01	0.13	0.25	0.41											
Concord, N. H.	24	6.32 p.m.	7.26 p.m.	0.50	7.00 p.m.	7.15 p.m.	0.04	0.11	0.25	0.44											
Concordia, Kans.	15			0.44														0.42			
Corpus Christi, Tex.	25	3.34 a.m.	7.43 a.m.	1.91	4.19 a.m.	5.39 a.m.	0.17	0.10	0.34	0.45	0.50	0.61	0.75	0.88	1.05	1.16	1.19	1.25	1.56		
Davenport, Iowa.	9	3.40 p.m.	7.30 p.m.	0.57	3.52 p.m.	4.02 p.m.	T.	0.18	0.32												
	28	10.55 a.m.	12.50 p.m.	2.25	11.12 a.m.	12.22 p.m.	0.02	0.09	0.17	0.26	0.41	0.62	0.80	0.98	1.16	1.31	1.48	1.83	2.17		
Del Rio, Tex.	25			0.28														0.13			
Denver, Colo.	3			0.31														0.15			
Des Moines, Iowa.	23			0.39														0.32			
Detroit, Mich.	23			0.20														0.13			
Devils Lake, N. Dak.	18			0.96														0.29			
	17	8.35 a.m.	11.30 a.m.	3.50	8.50 a.m.	9.40 a.m.	0.05	0.15	0.28												

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, for storms in which the rate of fall equaled or exceeded 0.25 in any 5 minutes, or 0.80 inch in 1 hour, during July, 1911, at all stations furnished with self-registering gages—Continued.

Stations.	Date.	Total duration.		Total amount of precipitation.	Excessive rate.		Amount before excessive rate began.	Depths of precipitation (in inches) during periods of time indicated.													
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Grand Rapids, Mich.	6			0.58														0.35			
Green Bay, Wis.	15			0.37														0.25			
Hannibal, Mo.	31	2.52 p.m.	7.50 p.m.	0.88	2.55 p.m.	3.09 p.m.	0.02	0.34	0.50	0.59											
Harrisburg, Pa.	7			0.72														0.67			
Hartford, Conn.	12	8.13 p.m.	9.15 p.m.	0.51	8.48 p.m.	9.03 p.m.	0.03	0.08	0.32	0.47											
Hatteras, N. C.	17	9.13 p.m.	D. N. p.m.	0.86	10.05 p.m.	10.55 p.m.	0.06	0.05	0.16	0.23	0.26	0.30	0.33	0.42	0.55	0.65	0.70				
Havre, Mont.	22	3.35 p.m.	3.55 p.m.	0.38	3.36 p.m.	3.50 p.m.	T.	0.19	0.29	0.35	0.38										
Helena, Mont.	9			0.26														0.24			
Houghton, Mich.	17			0.21														0.19			
Huron, S. Dak.	20			0.45														0.45			
Independence, Cal.	22	6.30 p.m.	D. N. p.m.	1.01	6.57 p.m.	7.17 p.m.	0.13	0.14	0.26	0.42	0.57										
Indianapolis, Ind.	30	8.28 p.m.	8.55 p.m.	0.78	8.31 p.m.	8.44 p.m.	0.02	0.42	0.67	0.75											
Iola, Kans.	23			0.10														*			
Jacksonville, Fla.	30	5.45 p.m.	7.10 p.m.	1.63	6.08 p.m.	6.52 p.m.	0.01	0.26	0.52	0.80	1.02	1.25	1.37	1.44	1.51	1.57					
Kalispell, Mont.	6	3.18 p.m.	8.15 p.m.	1.57	4.29 p.m.	5.04 p.m.	0.34	0.15	0.31	0.43	0.68	0.84	0.96	1.00							
Kansas City, Mo.	23	3.20 a.m.	4.50 a.m.	0.59	4.20 a.m.	4.34 a.m.	0.21	0.17	0.32	0.37											
Keokuk, Iowa.	15			0.38														0.35			
Key West, Fla.	16			0.20														0.20			
Knoxville, Tenn.	28	1.40 a.m.	3.10 a.m.	0.59	1.47 a.m.	2.05 a.m.	0.01	0.20	0.28	0.48	0.56										
La Crosse, Wis.	9	4.50 p.m.	9.10 p.m.	1.91	5.42 p.m.	6.32 p.m.	0.06	0.06	0.18	0.37	0.58	0.74	0.88	1.08	1.22	1.35	1.45				
Lander, Wyo.	31	2.15 p.m.	8.25 p.m.	1.32	2.44 p.m.	2.57 p.m.	0.05	0.15	0.48	0.53											
Lewiston, Idaho.	11			0.38														0.38			
Lexington, Ky.	7	8.10 p.m.	D. N. p.m.	1.11	8.21 p.m.	9.01 p.m.	0.01	0.10	0.27	0.38	0.47	0.66	0.79	0.85	0.93						
Lincoln, Nebr.	16	3.54 p.m.	6.29 p.m.	0.68	5.13 p.m.	5.22 p.m.	0.21	0.30	0.36												
Little Rock, Ark.	4	4.00 p.m.	4.55 p.m.	0.53	4.10 p.m.	4.20 p.m.	0.02	0.27	0.49												
Louisville, Ky.	18	3.25 p.m.	6.25 p.m.	0.96	4.26 p.m.	4.45 p.m.	0.22	0.08	0.40	0.52	0.56										
Los Angeles, Cal.	7	6.23 p.m.	7.40 p.m.	0.43	6.27 p.m.	6.47 p.m.	0.01	0.12	0.17	0.30	0.40										
Louisville, Ky.	14			0.01														0.01			
Madison, Wis.	8	3.05 p.m.	5.25 p.m.	0.49	3.12 p.m.	3.28 p.m.	0.02	0.19	0.29	0.37	0.41							0.35			
Marquette, Mich.	9			0.82																	
Memphis, Tenn.	13	1.26 p.m.	1.39 p.m.	0.52	1.26 p.m.	1.37 p.m.	0.00	0.21	0.50	0.52											
Meridian, Miss.	20	2.05 p.m.	2.50 p.m.	0.40	2.09 p.m.	2.22 p.m.	0.01	0.22	0.35	0.38											
Milwaukee, Wis.	24	D. N. a.m.	D. N. a.m.	0.66	1.22 a.m.	1.47 p.m.	0.02	0.05	0.14	0.23	0.39	0.46									
Minneapolis, Minn.	10			T.														T.			
Mobile, Ala.	11	2.45 p.m.	5.15 p.m.	1.58	3.48 p.m.	4.33 p.m.	0.02	0.24	0.54	0.78	0.96	1.13	1.24	1.34	1.41	1.47					
Modena, Utah.	20	4.05 p.m.	5.45 p.m.	1.14	4.16 p.m.	4.51 p.m.	0.02	0.19	0.39	0.50	0.65	0.87	0.97	1.02	1.07	1.10	1.17	1.27	1.56	1.74	
Montgomery, Ala.	7-8	7.50 p.m.	1.20 a.m.	3.47	7.56 p.m.	9.56 p.m.	0.01	0.13	0.28	0.35	0.36	0.38	0.61	0.80	0.93	1.00	1.03	1.10	1.27	1.56	1.74
Moorhead, Minn.	8	4.45 p.m.	5.30 p.m.	0.70	4.52 p.m.	5.22 p.m.	0.02	0.05	0.24	0.40	0.54	0.62	0.66								
Mount Tamalpais, Cal.	11	3.35 p.m.	4.10 p.m.	0.72	3.43 p.m.	4.02 p.m.	0.01	0.35	0.56	0.68	0.71										
Mount Weather, Va.	16	1.05 p.m.	1.34 p.m.	0.55	1.05 p.m.	1.20 p.m.	0.00	0.06	0.24	0.51											
Nantucket, Mass.	21	11.41 a.m.	12.30 p.m.	0.48	11.46 a.m.	11.56 a.m.	0.01	0.23	0.39												
Nashville, Tenn.	5			0.56														0.32			
New Haven, Conn.	9	3.25 p.m.	7.09 p.m.	0.70	3.36 p.m.	3.51 p.m.	0.11	0.12	0.26	0.35											
New Orleans, La.	20	8.50 a.m.	11.00 a.m.	0.63	9.50 a.m.	10.05 a.m.	0.01	0.13	0.31	0.49											
New York, N. Y.	15	8.53 a.m.	9.45 a.m.	0.56	8.57 a.m.	9.27 a.m.	0.01	0.09	0.23	0.38	0.45	0.49	0.55								
North Head, Wash.	19	11.40 a.m.	3.25 p.m.	1.51	12.17 p.m.	12.42 p.m.	0.17	0.19	0.45	0.75	0.78	0.88									
North Platte, Nebr.	24	5.00 p.m.	6.35 p.m.	0.71	10.31 a.m.	11.01 a.m.	0.03	0.09	0.23	0.33	0.41	0.45	0.52								
Northfield, Vt.	23			0.25																	
Oklahoma, Okla.	18	11.10 a.m.	6.55 p.m.	1.56	5.24 p.m.	5.49 p.m.	0.87	0.07	0.16	0.23	0.35	0.45									
Omaha, Nebr.	31	7.40 p.m.	D. N. p.m.	0.65	8.25 p.m.	8.37 p.m.	0.04	0.08	0.37	0.49											
Oswego, N. Y.	5	11.30 a.m.	7.40 p.m.	1.49	12.52 p.m.	1.11 p.m.	0.21	0.23	0.54	0.69	0.74										
Palestine, Tex.	15	D. N. a.m.	8.00 a.m.	1.42	1.15 a.m.	1.49 a.m.	0.01	0.11	0.39	0.56	0.75	1.07	1.26	1.37							
Parkersburg, W. Va.	18	3.03 p.m.	7.15 p.m.	1.28	4.41 p.m.	5.16 p.m.	0.06	0.30	0.54	0.66	0.78	0.87	0.93								
Peoria, Ill.	12	7.05 p.m.	11.10 p.m.	0.74	7.07 p.m.	7.27 p.m.	0.01	0.07	0.22	0.40	0.48										
Philadelphia, Pa.	31	11.35 a.m.	12.50 p.m.	0.97	12.04 p.m.	12.32 p.m.	0.10	0.06	0.12	0.18	0.47	0.75	0.84	0.86							
Phoenix, Ariz.	22			0.87														0.30			
Pierre, S. Dak.	17			0.02														0.02			
Pittsburgh, Pa.	14	7.45 a.m.	8.25 a.m.	0.56	7.59 a.m.	8.14 a.m.	0.03	0.16	0.37	0.50											
Pocatello, Idaho.	21	12.26 p.m.	12.38 p.m.	0.29	12.30 p.m.	12.36 p.m.	0.01	0.25	0.28												
Point Reyes Light, Cal.	12	12.10 p.m.	2.50 p.m.	0.47	1.17 p.m.	1.30 p.m.	0.01	0.25	0.38	0.41											
Portland, Me.	16	10.55 a.m.	1.40 p.m.	1.14	11.36 a.m.	12.16 p.m.	0.06	0.06	0.10	0.23	0.43	0.52	0.67	0.72	0.79						
Portland, Oreg.	20	10.04 p.m.	D. N. p.m.	0.97	10.10 p.m.	10.45 p.m.	0.01	0.09	0.26	0.32	0.41	0.63	0.85	0.90							
Portland, Oreg.	17	9.13 a.m.	10.36 a.m.	0.68	9.58 a.m.	10.30 a.m.	0.11	0.06	0.14	0.19	0.23	0.32	0.51	0.57							
Portland, Oreg.	5	6.20 a.m.	12.10 p.m.	2.71	6.24 a.m.	7.23 a.m.	0.01	0.28	0.61	0.92	1.19	1.51	1.80	2.00	2.18	2.24	2.27	2.43			
Portland, Oreg.	13	1.00 p.m.	1.45 p.m.	0.53	1.06 p.m.	1.20 p.m.	0.01	0.18	0.38	0.44											

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, for storms in which the rate of fall equaled or exceeded 0.25 in any 5 minutes, or 0.80 inch in 1 hour, during July, 1911, at all stations furnished with self-registering gages—Continued.

Stations.	Date.	Total duration.		Total amount of precipitation.	Excessive rate.		Amount before excessive rate began.	Depths of precipitation (in inches) during periods of time indicated.													
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Providence, R. I.	28			2.07														0.57			
Pueblo, Colo.	2	4.22 p. m.	5.18 p. m.	0.94	4.32 p. m.	4.59 p. m.	0.01	0.18	0.34	0.57	0.75	0.86	0.90								
	3	12.56 p. m.	1.43 p. m.	0.54	1.03 p. m.	1.19 p. m.	0.01	0.16	0.37	0.47	0.51										
	3	12.05 p. m.	1.30 p. m.	0.36	1.07 p. m.	1.17 p. m.	0.04	0.18	0.31												
Raleigh, N. C.	31	12.49 p. m.	1.25 p. m.	0.54	12.53 p. m.	1.10 p. m.	0.01	0.08	0.28	0.43	0.51										
Rapid City, S. Dak.	19			0.27														0.26			
Red Bluff, Cal.	†																				
Reno, Nev.	18	12.15 p. m.	12.48 p. m.	0.62	12.21 p. m.	12.40 p. m.	0.01	0.16	0.30	0.36	0.61										
Richmond, Va.	13			0.39														0.29			
Rochester, N. Y.	16	1.00 a. m.	5.40 a. m.	1.00	3.13 a. m.	3.28 a. m.	0.23	0.26	0.35	0.46											
	30	12.32 p. m.	2.20 p. m.	1.85	1.03 p. m.	2.02 p. m.	0.04	0.10	0.22	0.31	0.46	0.64	0.80	0.83	0.85	1.04	1.30	1.80			
Roseburg, Oreg.	13			0.03														0.02			
Sacramento, Cal.	†																				
St. Louis, Mo.	23			0.34														0.16			
St. Paul, Minn.	27-28	8.10 p. m.	12.30 a. m.	1.09	9.31 p. m.	10.01 p. m.	0.03	0.15	0.31	0.42	0.47	0.53	0.62								
Salt Lake City, Utah.	21			0.01														0.01			
San Antonio, Tex.	14-15			0.33														0.30			
San Diego, Cal.	10			0.05														0.03			
Sandusky, Ohio.	10	1.15 p. m.	1.42 p. m.	0.71	1.17 p. m.	1.39 p. m.	0.01	0.13	0.28	0.60	0.68	0.70									
	11	2.15 p. m.	2.50 p. m.	0.47	2.19 p. m.	2.32 p. m.	0.01	0.27	0.40	0.44											
San Francisco, Cal.	17			T.														T.			
San Jose, Cal.	†																				
San Luis Obispo, Cal.	10			T.														T.			
Santa Fe, N. Mex.	2			1.64														0.73			
Sault Ste. Marie, Mich.	19			0.72														0.29			
Savannah, Ga.	9	12.20 a. m.	D. N. a. m.	1.55	1.00 a. m.	1.10 a. m.	0.01	0.22	0.34	0.33	0.43	0.53	0.53	0.62	0.67	0.67	0.78	0.91			
					2.28 a. m.	3.27 a. m.	0.64	0.07	0.36												
Scranton, Pa.	10	12.58 p. m.	1.35 p. m.	0.59	1.03 p. m.	1.35 p. m.	0.01	0.05	0.19	0.27	0.45	0.50	0.58								
Seattle, Wash.	7			0.09														0.05			
Sheridan, Wyo.	30			0.44														0.27			
Shreveport, La.	14	6.28 p. m.	9.50 p. m.	0.52	6.38 p. m.	7.03 p. m.	0.07	0.08	0.12	0.26	0.42	0.45									
Sioux City, Iowa.	23			0.50														0.48			
Southeast Farallon, Cal.	†																				
Spokane, Wash.	1			0.16														0.05			
Springfield, Ill.	11	12.58 p. m.	2.56 p. m.	1.49	1.35 p. m.	2.36 p. m.	0.14	0.09	0.21	0.34	0.35	0.35	0.36	0.48	0.59	0.79	0.94	1.32	1.33		
Springfield, Mo.	23	6.37 a. m.	10.15 a. m.	0.87	6.56 a. m.	7.21 a. m.	0.01	0.10	0.25	0.43	0.58	0.68									
Syracuse, N. Y.	11	4.52 p. m.	5.30 p. m.	0.53	5.00 p. m.	5.23 p. m.	T.	0.09	0.34	0.40	0.47	0.52									
Tacoma, Wash.	3			0.04														0.01			
Tampa, Fla.	3	1.00 p. m.	2.07 p. m.	0.65	1.06 p. m.	1.20 p. m.	0.02	0.22	0.48	0.57											
	4	4.15 p. m.	8.00 p. m.	1.38	4.27 p. m.	5.20 p. m.	0.05	0.07	0.25	0.53	0.78	0.89	0.95	1.00	1.05	1.10	1.19	1.29			
	13	2.34 p. m.	3.45 p. m.	0.46	2.42 p. m.	2.55 p. m.	0.03	0.15	0.30	0.40											
	29	3.30 p. m.	9.30 p. m.	2.27	3.53 p. m.	4.42 p. m.	0.03	0.41	0.81	1.03	1.13	1.21	1.32	1.44	1.53	1.64	1.70				
Tatoosh Island, Wash.	1			0.26														0.07			
Taylor, Tex.	17	10.30 p. m.	D. N. p. m.	0.76	11.15 p. m.	11.43 p. m.	0.16	0.06	0.19	0.37	0.44	0.52	0.57								
	18	D. N. a. m.	D. N. a. m.	1.58	12.58 a. m.	1.32 a. m.	0.01	0.10	0.19	0.57	0.83	1.02	1.19	1.25							
	5	2.46 p. m.	3.32 p. m.	0.61	2.50 p. m.	3.05 p. m.	0.01	0.27	0.51	0.58											
Thomasville, Ga.	9	10.40 a. m.	11.46 a. m.	1.12	11.00 a. m.	11.35 a. m.	0.06	0.10	0.20	0.24	0.45	0.62	0.81	1.01							
		12.21 p. m.	2.28 p. m.	0.77	12.56 p. m.	1.16 p. m.	0.12	0.13	0.30	0.46	0.53										
	22	10.11 a. m.	11.52 a. m.	1.04	10.24 a. m.	11.20 a. m.	0.04	0.11	0.39	0.47	0.61	0.63	0.66	0.68	0.69	0.73	0.91	0.99			
Toledo, Ohio.	11			0.34														0.34			
Tonopah, Nev.	18			0.34														0.30			
Topeka, Kans.	22-23	7.01 p. m.	7.10 a. m.	2.83	5.07 a. m.	5.59 a. m.	0.15	0.24	0.41	0.76	1.06	1.35	1.61	1.98	2.33	2.52	2.60	2.65			
Valentine, Nebr.	18			0.19														0.18			
Vicksburg, Miss.	30	12.22 p. m.	5.20 p. m.	1.27	12.28 p. m.	1.01 p. m.	0.01	0.15	0.15	0.25	0.42	0.62	0.74	0.80							
Walla Walla, Wash.	3			T.														T.			
Washington, D. C.	7	1.15 p. m.	2.00 p. m.	0.88	1.20 p. m.	1.45 p. m.	T.	0.46	0.43	0.67	0.77	0.86									
	17	7.10 a. m.	11.55 a. m.	0.54	9.39 a. m.	9.45 a. m.	0.01	0.44													
	21	12.52 p. m.	2.40 p. m.	1.39	1.25 p. m.	2.24 p. m.	0.25	0.19	0.41	0.59	0.62	0.66	0.67	0.68	0.75	0.90	0.94	1.13			
		8.00 p. m.	10.12 p. m.	1.17	8.03 p. m.	8.13 p. m.	0.01	0.31	0.62												
Wichita, Kans.					3.19 p. m.	3.40 p. m.	0.01	0.13	0.27	0.42	0.51										
	9	3.09 p. m.	4.35 p. m.	0.53	2.09 a. m.	2.59 a. m.	0.04	0.24	0.55	0.90	1.04	1.15	1.31	1.42	1.48	1.54	1.57				
	31	1.30 a. m.	5.25 a. m.	3.18	2.59 a. m.	3.49 a. m.		0.59	1.06	1.70	1.71	1.81	1.88	1.91	1.96	2.06	2.19				
					3.49 a. m.	4.29 a. m.		2.27	2.34	2.39	2.52	2.69	2.86	2.94	3.01						
Williston, N. Dak.	31			0.62														0.22			
Wilmington, N. C.	6	12.10 p. m.	1.05 p. m.	1.20	12.12 p. m.	1.08 p. m.	0.01	0.13	0.44	0.68	0.75	0.80	0.85	0.93	0.99	1.05	1.15				
	14	12.39 p. m.	1.35 p. m.	0.88	12.42 p. m.	1.02 p. m.	0.03	0.30	0.42	0.50	0.76										
Winnemucca, Nev.	16			0.07														0.07			
Wytheville, Va.	8	11.52 a. m.	12.45 p. m.	0.55	12.32 p. m.	12.42 p. m.	0.08	0.30	0.47												
Yankton, S. Dak.	22-23	10.55 p. m.	12.30 a. m.	0.80	11.13 p. m.	11.33 p. m.	0.03	0.11	0.33	0.41	0.51										
Yellowstone Park, Wyo.	20			0.33														0.22			

* Self-register not working.

** Estimated.

† Record incomplete.

‡ No precipitation occurred during month.

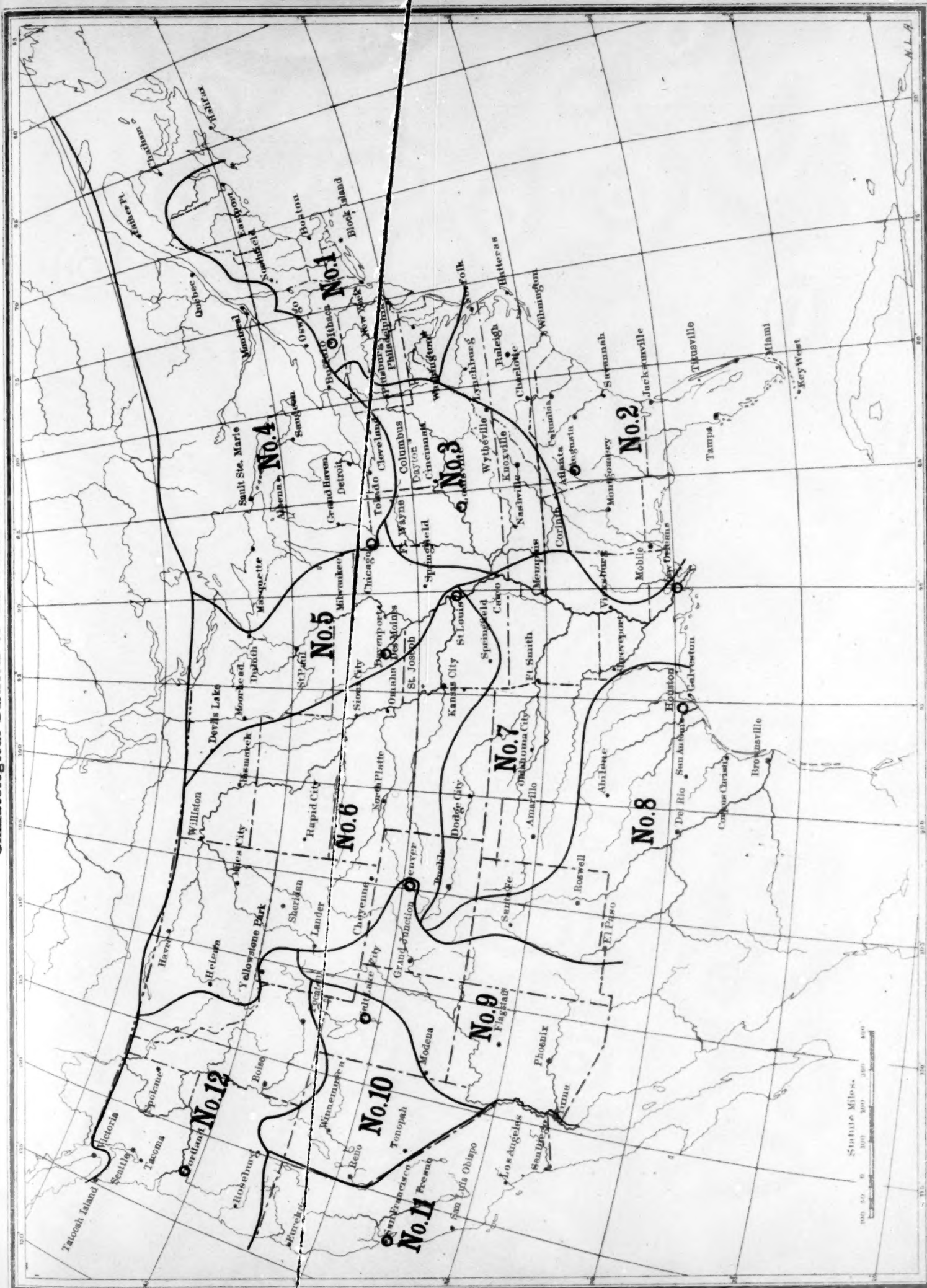
TABLE III.—Data furnished by the Canadian Meteorological Service, July, 1911.

Districts and stations.	Pressure.			Temperature.								Precipitation.	
	Station, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean max. mean min. +2.	Departure from normal.	Mean in a x l-minum.	Mean minimum.	Highest.	Lowest.	Total.	Departure from normal.	Total snowfall.	
St. John's, N. F.	Ins. 29.82	Ins. 29.95	Ins. -.02	° F. 60.5	+ 1.2	° F. 68.3	° F. 52.7	° F. 83	° F. 44.2	Ins. 2.03	Ins. -1.86		
Sydney, C. B. I.	29.94	29.98	+.05	67.3	+ 5.0	76.8	57.8	92	47.3	25	-0.40		
Halifax, N. S.	29.88	29.98	+.02	68.7	+ 5.3	78.8	58.6	91	50.2	48	-1.57		
Grand Manan, N. B.	29.90	29.95	+.02	65.2	+ 3.5	73.7	56.8	82	52.2	47	-0.53		
Yarmouth, N. S.	29.92	29.99	+.04	64.5	+ 5.0	74.2	54.7	86	49.1	31	-2.31		
Charlottetown, P. E. I.	29.91	29.95	+.05	60.9	+ 5.8	78.6	61.1	88	54.1	27	-2.22		
Chatham, N. B.	29.92	29.94	+.06	71.0	+ 6.0	82.3	59.7	95	53.5	38	+1.19		
Father Point, Que.	29.84	29.86	+.01	60.9	+ 3.3	69.2	52.7	77	46.5	86	+2.82		
Quebec, Que.	29.58	29.90	-.01	70.3	+ 4.8	80.8	59.8	93	52.3	80	-0.46		
Montreal, Que.	29.72	29.92	-.01	72.8	+ 4.3	81.4	64.2	94	56.2	17	-2.12		
Stonecliffe, Ont.	29.31	29.91	-.03	68.2	+ 2.6	82.3	54.0	109	45.1	74	-1.38		
Ottawa, Ont.	29.68	30.00	+.06	69.9	+ 0.4	80.3	59.6	95	50.3	10	-0.37		
Kingston, Ont.	29.66	29.96	-.01	68.6	+ 0.4	76.3	60.8	85	50.2	00	-0.89		
Toronto, Ont.	29.60	29.96	-.01	71.6	+ 3.6	82.6	60.6	103	48.2	61	-0.31		
White River, Ont.	28.59	29.85	-.09	60.7	+ 1.2	72.9	48.6	90	39.4	57	+1.77		
Port Stanley, Ont.	29.34	29.97	-.01	69.6	+ 1.8	79.3	60.0	88	48.4	05	+1.01		
Southampton, Ont.	29.29	.....	.....	67.7	+ 3.0	77.0	58.4	91	45.1	06	-0.92	

TABLE III.—Data furnished by the Canadian Meteorological Service, July, 1911—Continued.

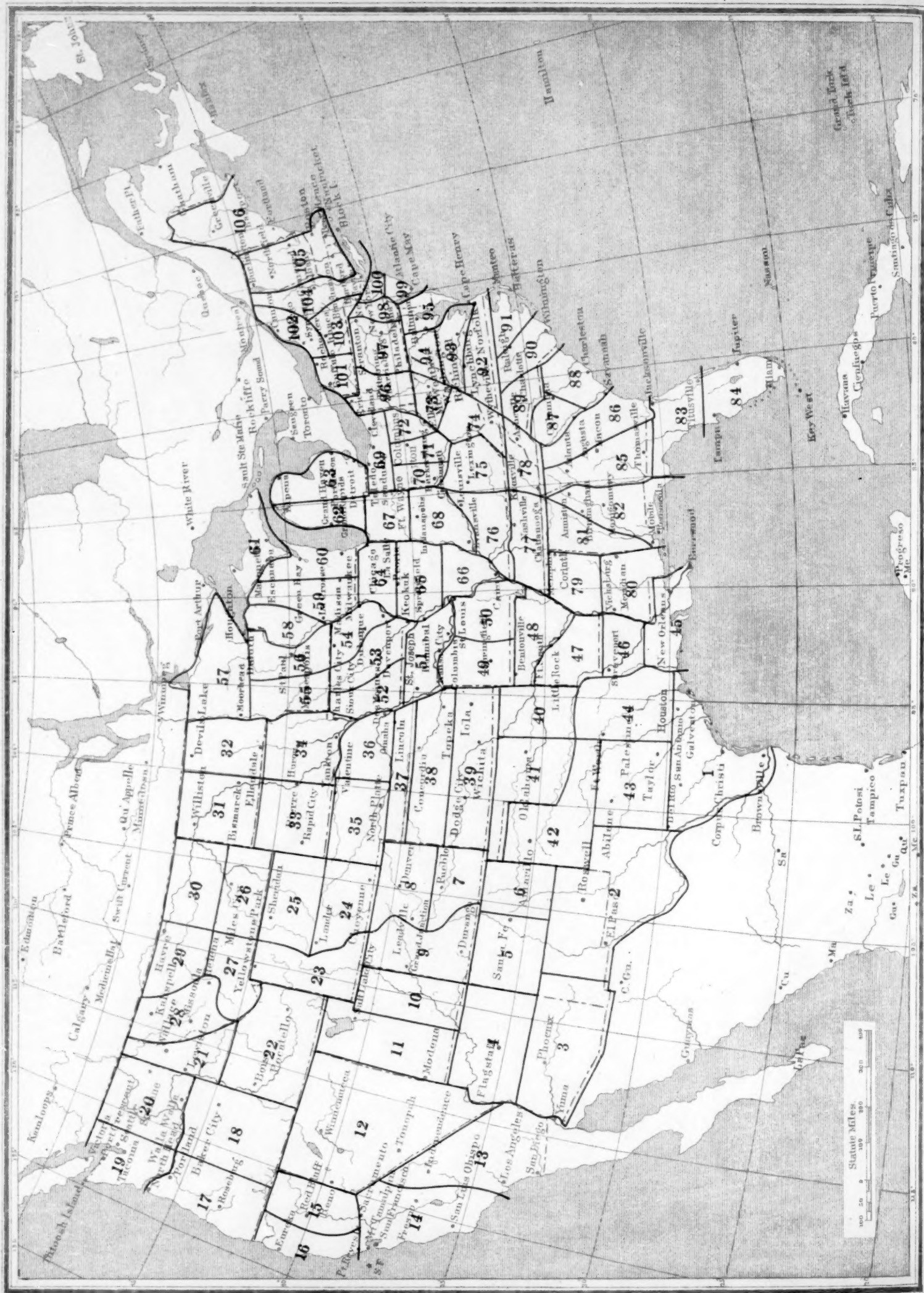
Districts and stations.	Pressure.			Temperature.						Precipitation.		
	Station, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean max. mean min. +2.	Departure from normal.	Mean in a x l - minum.	Mean minimum.	Highest.	Lowest.	Total.	Departure from normal.	Total snowfall.
Parry Sound, Ont.	29.28	29.98	+.02	70.1	+ 4.1	81.2	59.0	98	47	2.24	-0.38	
Port Arthur, Ont.	29.17	29.88	-.05	62.8	+ 0.8	74.2	51.4	94	42	3.01	-0.47	
Winnipeg, Man.	29.07	29.89	-.04	64.2	+ 1.8	75.2	53.1	86	43	2.96	-0.12	
Minnedosa, Man.	28.12	29.91	-.02	60.2	+ 2.0	72.0	48.5	89	37	2.05	-0.55	
Qu'Appelle, Sask.	27.70	29.93	+.01	57.6	+ 5.9	67.9	47.3	79	35	2.76	+0.28	
Medicine Hat, Al.												
berta.	27.70	29.94	+.04	65.1	+ 2.7	79.4	50.8	95	42	1.65	-0.44	
Swift Current, Sask.	27.45	29.98	+.07	60.8	+ 5.7	73.0	48.5	86	38	2.56	+0.12	
Calgary, Alberta.	26.49	29.99	+.09	56.8	+ 3.8	68.8	44.8	88	33	2.17	-0.51	
Banff, Alberta.	25.48	30.02	+.12	55.8	+ 0.8	70.0	41.5	86	30	1.38	-1.86	
Edmonton, Alberta.	27.70	29.96	+.06	60.0	+ 0.6	72.0	48.0	87	40	5.83	+2.80	
Prince Albert, Sask.	28.40	29.94	+.03	58.6	+ 3.3	69.9	47.2	84	39	1.98	-0.07	
Battleford, Sask.	28.22	29.94	+.04	59.2	+ 5.5	70.2	48.2	84	38	3.39	+1.05	
Kamloops, B. C.	28.68	29.92	-.02	70.0	+ 1.5	84.4	55.6	100	47	0.78	-0.83	
Victoria, B. C.	29.96	30.05	+.00	62.3	+ 2.3	73.5	51.1	90	45	0.14	-0.26	
Barkerville, B. C.	25.77	30.06	+.15	52.8	+ 2.3	63.8	41.7	78	32	2.12	-0.90	
Dawson, Yukon.												
Hamilton, Bermuda	30.03	30.19	+.05	78.3	+ 0.4	84.2	72.4	88	60	1.66	-2.78	

Climatological Districts of the United States.



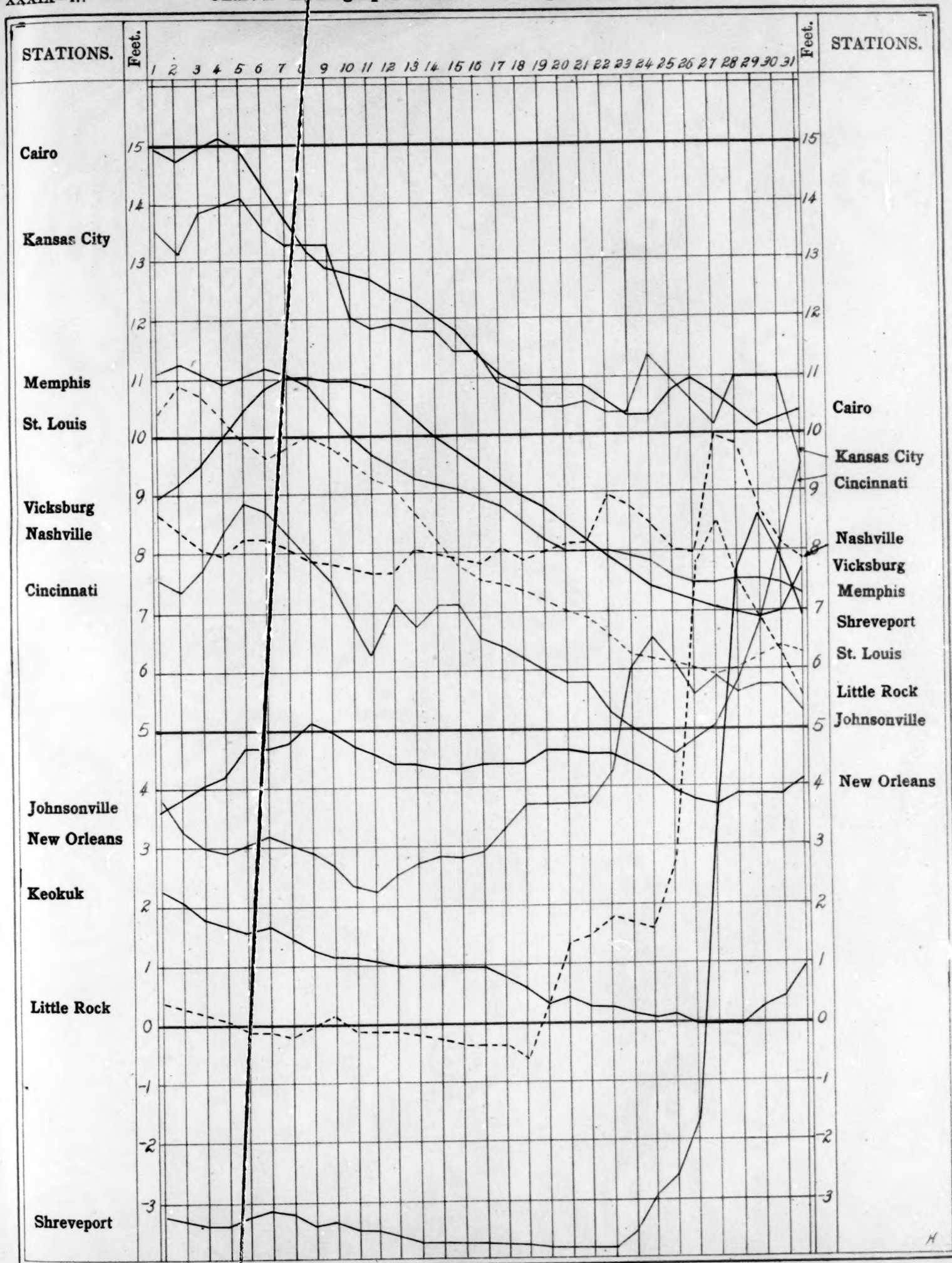
106 Climatological Sections in the United States.

•Barkerville



Mexico Vera Cruz

Chart I. Hydrographs of Several Principal Rivers, July, 1911.



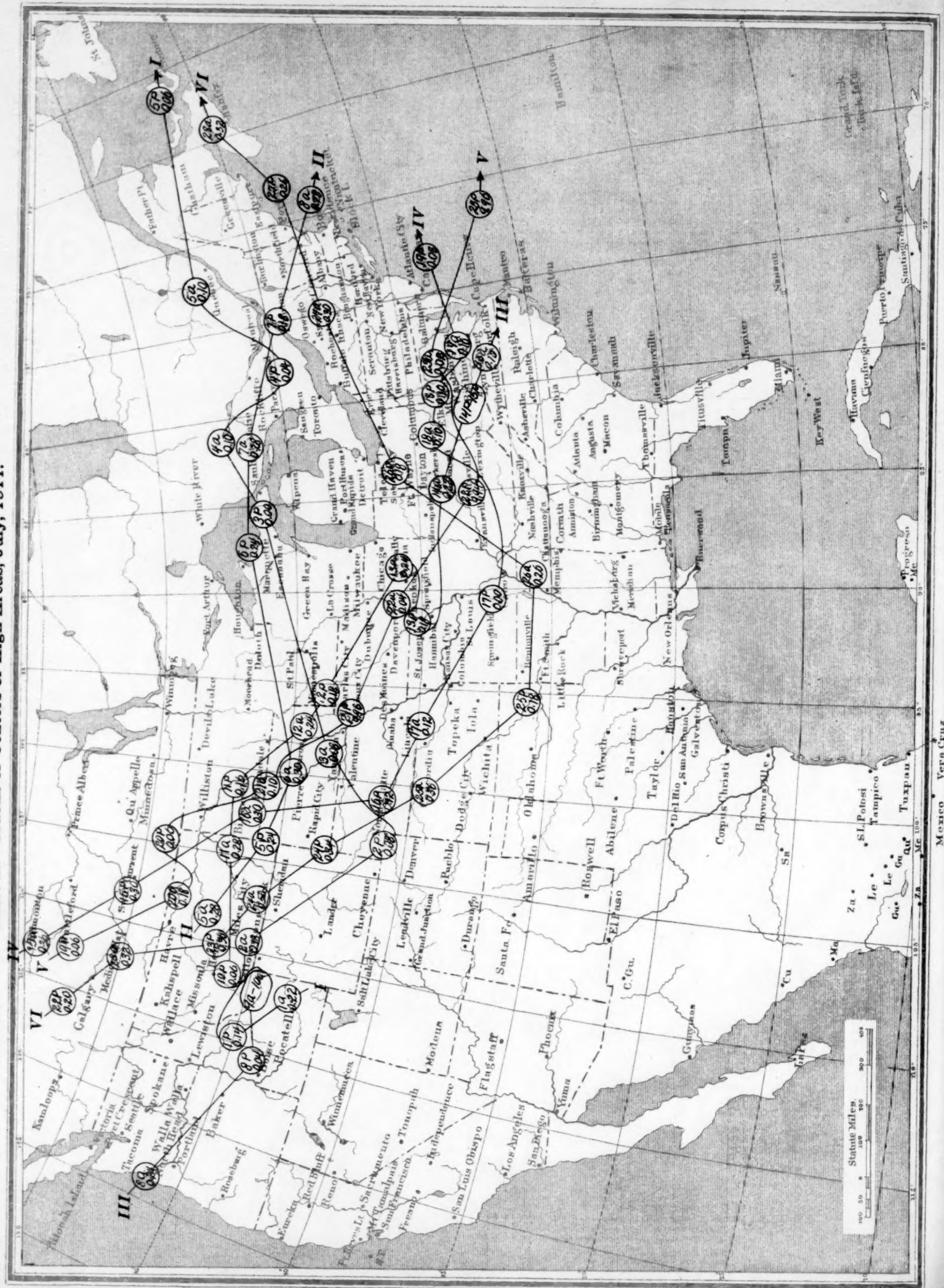


Chart III. Tracks of Centers of Low Areas, July, 1911.

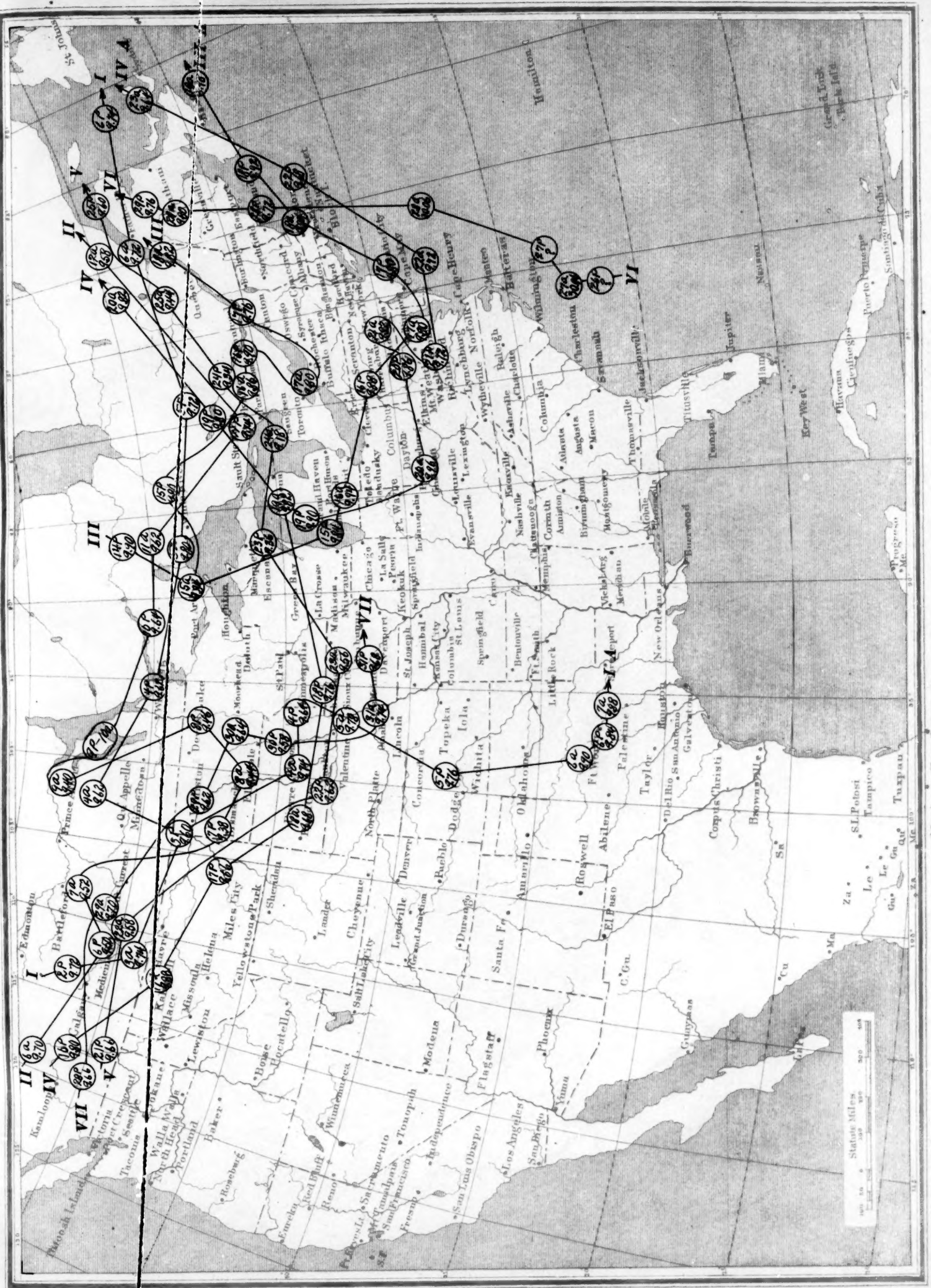


Chart IV. Departure of the Mean Temperature from the Normal, July, 1911.

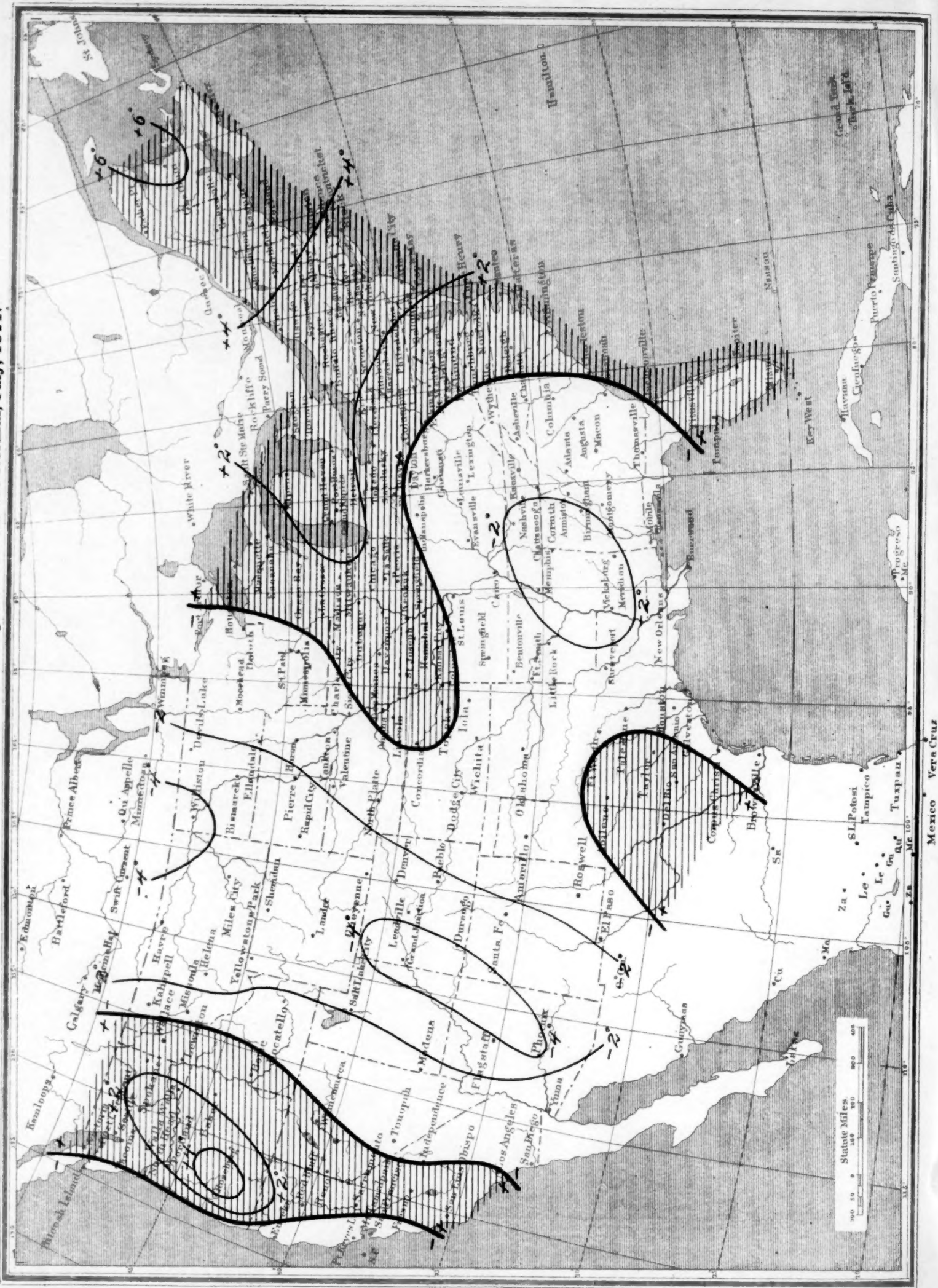




Chart VI. Percentage of Clear Sky between Sunrise and Sunset, July, 1911.



Chart VII. Isobars and Isotherms at Sea Level; Prevailing Winds, July, 1911.

